PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. 1846 & 1847.

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PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. JAN. AND FEB., 1846. No. 1.

Stated Meeting, January 6, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Report on the chemical examination of Mineral Waters for the city of Boston. By Benjamin Silliman, Jr. Boston, 1845. From the Author.

First Annual Report on the Geology of Vermont. By C. B. Adams. Burlington, Vermont 1845. From the Author.

Synopsis Conchyliorum Jamaiciensium, &c. By C. B. Adams. From the same.

Fresh-water and land Shells of Vermont. By C. B. Adams. From the same.

The Culture of Silk, or an essay on its rational practice and improvement; in 4 parts. By the Rev. Samuel Pullein. 8vo. London, 1758. From Dr. Morton.

Proceedings of the Zoological Society of London, for 1844 and 1845. From the Society.

Two additional sheets, completing the map of the U. S. coast

survey of New York Harbor and Bay. From the Treasury Department, through A. D. Bache, Esq.

A communication was read from A. D. Bache, Esq., dated Washington, Dec. 9, 1845, presenting the above.

Mr. Conrad read a paper, intended for publication, entitled "Descriptions of nineteen new species of fossil and recent Shells and Corals of the United States;" which was referred to a committee consisting of Mr. Phillips, Dr. Pickering, and Mr. Harris.

Stated Meeting, January 13, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Mr. Phillips presented specimens of the following Shells:

Paludina apicina, Phillips, from Uraguay; Physa princeps. Phillips, and Glandina obtusa, Pfeiffer, from Yucatan.

Specimen of Unio Sowerbianus, Lea, from Nashville, Tenn. From Mr. J. B. Lindsley.

Fossil bone of a Whale's ear, from the Desert of Atacama. Peru. From Mr. J. F. Watson.

Recent shell limestone, from Anastasia Island, Coast of Florida. From Dr. Abadie.

DONATIONS TO LIBRARY.

American Journal of Arts and Sciences. No. 1. Vol. I. 2d Series, January, 1846. From the Editors.

Musci Alleghaniensis, sive Spicilegia Muscorum atque Hepaticarum quas in itmere a Marylandia usque ad Georgiam per tractus montium, A. D. 1843, decerpserunt Asa Gray et W. S. Sullivant, &c., Columbus, Ohio, 1845. From the Authors.

Contributions towards a history of Entomology in the United

States. By John G. Morris, D. D., Baltimore, 1845. From the Author.

Literary Record and Journal of the Linnean Association of Pennsylvania College. No. 1. Vol. 2. From the Association.

A history of British fossil Mammalia and Birds. By Richard Owen, F. R. S., &c. Parts 9 and 10. From Dr. T. B. Wilson.

The following works in the Hawaiian language, published in the Sandwich Islands, were presented by Mr. William Gambel:

Ka Palapala Hemolele, 2 vols., (The Holy Bible); Ke Kanoha Hou, (The New Testament); Ke Kumu Hawai, (The Hawaiian Teacher); Ka Hele Malihini ana, (The Pilgrim's Progress); Hoike Akua, (A Theology); Ka Hope no ka Helunaau, (An Arithmetic); Ke Kumu Kanawai, (The Laws of the Sandwich Islands); He Hoikehouna, (A Geography); He Piliolelo, &c., (A Grammar of the English Language); O Ke Kokua no ka Hawaii, &c., (A Primer of the English Language); Ka Mooolelo, &c., (A History of the Christian Church.)

Also, from the same donor, the following in the English language:

History of the Sandwich Islands. By Sheldon Dibble. Lahainaluna, 1843.

Sandwich Island Gazette. Vols. 1, 2 and 3—1836 to 1839.

The Polynesian. Vols. 1 and 2—1840 to 1841.

A Vocabulary of the Hawaiian Language. Lahainaluna, 1836.

Documents relating to the restoration of the Sandwich Islands' Flag, 1843.

Statistics relating to the Sandwich Islands.

Letters were read:

From M. C. B. Adams, dated Middlebury, Vermont, Dec. 31, 1845, returning acknowledgements for a copy of the Pro-

ceedings of the Academy, from January, 1844, to October, 1845.

From Jacob Tremper, Esq., dated Dresden, N. Y., Jan. 8, 1846, replying to a request from the Corresponding Secretary to endeavor to procure for the Society a copy of the Natural History of the State of New York, and stating the terms upon which it could be obtained.

Mr. Phillips read a paper, intended for publication, describing new fresh-water shells, with observations on Glandina obtusa, Pfeif.—specimens of all of which have been presented by him this evening. Referred to the following Committee: Mr. Conrad, Dr. Leidy, and Dr. Morton.

Slated Meeting, January 20, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The Curators exhibited a large collection of Quadrupeds and Birds in skin; fishes and reptiles in spirits; insects, plants, fossils and minerals, received in exchange from Mr. J. G. H. Kinberg, of Lund, Sweden.

Mr. Cassin presented two reptiles from Western Africa, presumed to be new.

Specimens of Indusial limestone, or Travertine of Auvergne, with numerous small Paludinæ attached to tubes of Phrygænea: from Valliere, near Moulins, France. Presented by Richard C. Taylor, Esq.

A communication was read from the Secretary of the American Philosophical Society, dated Dec. 5, 1845, returning acknowledgments for Nos. 10 and 11 of the Proceedings.

Mr. Cassin read a translation of a letter from Mr. Kinberg, dated Lund, Sweden, November, 1845, in relation to the collection received from him and exhibited this evening.

The Chairman read a letter from Mr. Charles Lyell, dated Darien, Georgia, January 8, 1846, requesting permission from

the Academy to take to London for a short period, for further investigation and comparison by Professor Owen, the following fossil specimens from the Brunswick canal, Georgia, presented to the Institution by Mr. J. Hamilton Cooper, of Georgia, viz:

Lower incisor tooth of Hippopotamus; fragment of same; fragment, supposed to be that of a Hippopotamus; tooth ef a horse; Sus Americanus, Harlan; supposed tibia of a Bos; humerus of do.

Meeting for Business, January 27, 1846.

VICE PRESIDENT MORTON in the Chair.

The Society having received several reports, and authorized the Geological Committee to loan Mr. Lyell the fossil specimens referred to in his letter, read at last meeting, proceeded to an election for Standing Committees for the present year, with the following result:

COMMITTEES FOR 1846.

Geological and Mineralogical.

J. Price Wetherill, Wm. S. Vaux,
S. G. Morton, Walter R. Johnson,
T. A. Conrad, Samuel Ashmead,
Theodore F. Moss.

Zoological.

John S. Phillips, John Cassin,
Edward Harris, John K. Townsend,
Wm. S. Zantzinger, Joseph Leidy,
William Gambel.

Botanical.

Robert Bridges, Gavin Watson,
Wm. S. Zantzinger. Robert Kilvington,
William Gambel.

Physics.

Isaiah Lukens, Paul B. Goddard,
Walter R. Johnson, J. S. Phillips,
Theodore F. Moss.

Library.

Robert Bridges, Robert Pearsall,
W. S. Zantzinger, Geo. W. Carpenter,
Samuel B. Ashmead.

Committee on Proceedings.

S. G. Morton.
John S. Phillips,
Joseph Leidy,
} *Corresponding and Recording Secretaries, ex-officio.*

ELECTION OF CORRESPONDENTS.

Charles Nicholson, M. D., of Sydney, New South Wales, and the Baron Von Gerolt, Prussian Minister at Washington, were elected Correspondents of the Academy.

Stated Meeting, February 3, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen of Unio crassus, Say, var. fasciatus, Raf., from the Susquehanna river. From Mr. Haldeman.

A small collection, in skin, of European Birds. From R. C. Taylor, Esq.

DONATIONS TO LIBRARY.

Eighteen publications, in pamphlet form, on Medicine, Surgery, Pathology and Physiology, in the French, Italian and Latin languages, by the following named authors: MM. Huot, Bernard, Lefevre, Laveran et Millon, Pidoux, Rognetta, Chevalier, Parise, Mojou, Boudet, Rolando, Francisco Paolo de Chiara, Garbiglietti, Paolo Fabrizj, and

C. A. Roesch. From Dr. J. C. M. Boudin, of Versailles, through Richard K. Haight, Esq., of New York.

Bulletin semestrial de la Sociéte Royale de Medecine de Marseille. 1me. Annee. No. 1. 2me. An. No. 1. and 2. 4me. An. No. 1 and 2. From the same.

A dissertation upon the origin of Mineral Coal. By Charles Whittlesey, (late of the Geological Corps of Ohio,) Cleveland, 1845. From the Author.

The American Journal of Science and Arts. Vol. 46. No. 1. January, 1844. From the Editors, (in compliance with a request from the Academy, for completing the series in the Library.)

Transactions of the Linnean Society of London. Vol. XIX. Part 4. 4to. London, 1845.

Proceedings of the same, from November, 1844, to June, 1845; and List of the Linnean Society for 1845. From the Society.

Letters were read:

From Benjamin Silliman, Jr., dated New Haven, January 25, 1846, accompany the donation of the No. of Silliman's Journal received this evening.

From the Linnean Society of London, dated November 7, 1845, returning acknowledgements for certain Nos. of the Proceeding of the Academy, and for Vol. 8, Part 1, of the Journal, transmitted at the request of the Society.

From Professor Owen, of London, dated Nov. 11, 1845, in reference to the fossil genus *Dorudon*, of Dr. R. W. Gibbes, published in the Academy's Proceedings. He considers this genus to be the same as the Zeuglodon, (Basilosaurus of Harlan,) to which genus also belongs the very extensive series of bones recently brought from Alabama by Dr. Koch, and now exhibiting in this city.

Mr. Haldeman offered some remarks on the specimen of

Unio crassus presented by him this evening, and stated that it is one of those which he placed in the river Susquehanna, in a living state, in the year 1841, a record of which fact will be found at page 104, Vol. 1, of the Proceedings of the Academy. As no western species of Unio, except U. viridis, Raf., had hitherto been found in that river, Mr. Haldeman had no doubt that the present specimen was in reality one of those referred to. The growth had been inconsiderable, and the general appearance very little changed. The other individuals of this and other species seem not to have survived.

Stated Meeting, February 10, 1846.

Vice President Morton in the Chair.

DONATIONS TO LIBRARY.

Eleventh and Twelfth Memoirs with reference to the law of Storms in India, &c. By Henry Piddington. Calcutta, 1845. From the Author.

A letter was read from Mr. Piddington, dated Calcutta, September 8, 1845, accompanying the donation of his Memoirs above announced, and calling the attention of the Society to the Postscript to the 11th Memoir, page 64, "where a curious experiment will be found detailed, which sets the whole question of circular or converging winds (winds blowing towards a centre) completely at rest, for these seas at least."

A letter was read from Benjamin Silliman, Jr., dated New Haven, February 6, 1846, requesting on behalf of M. Alcide D'Orbigny, of Paris, exchanges between him and the Academy, both of books and specimens of Natural History, and suggesting especially the transmission of the publications of this Society for such of M. D'Orbigny's works as may be desirable for its Library.

Professor Johnson then read to the Society the portion of Mr. Piddington's Memoir referred to in his letter, and added some remarks in confirmation of the correctness of the views of the author on the subject.

Dr. Morton announced that he had recently received letters from Mr. I. G. Strain, U. S. N., a Correspondent of this Institution, dated from the China seas, detailing the causes of failure of his late expedition into the interior of Brazil. Mr. S. was on his return home, and expressed an ardent hope of being enabled to make a renewed effort to accomplish the objects of his undertaking.

On motion of Mr. Phillips, *Resolved*, That the Geological Committee be authorised to put up a collection of the duplicate fossils, to be forwarded to M. D'Orbigny.

Stated Meeting, February 17, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Prepared specimen of Orthogariscus mola, from the Capes of Delaware. Presented by Messrs. Phillips, Cassin, and Hazard.

The following specimens, prepared and mounted, were presented by Messrs. Haldeman, Cassin, Bridges and Morton, viz :

Cebus apellus? South America, C. hypoleucus, and two other species; and Jacchus vulgaris, Geoff.

Rib bone of a cetaceous animal found in the green sand near Burlington, New Jersey; also fragments of fossil bone; Baculites ovatus, and Scaphites Cuvieri, from the vicinity of Morristown, New Jersey. Presented by Mr. Germain, of Burlington, through Dr. Hallowell.

Letters were read:

From the Baron Von Gerolt, Prussian Minister at Washiugton, dated February 9, 1846, returning acknowledgments for his election as a Correspondent.

From Jacob Tremper, Esq., dated Dresden, New York, February 9, 1846, calling the attention of the Society to the advantages and importance of the adoption by scientifiic bodies throughout the Uuited States, of some general rules for keeping meteorological registers for comparison, &c.

From the American Academy of Arts and Sciences of Boston, dated February 8, 1846, communicating a copy of a letter addressed by a committee of that Society to the Joint Library Committee of Congress, desiring the publication of a larger edition of the Scientific Reports of the late U. S. Exploring Expedition, and soliciting the co-operation of this Institution in the matter.

The copy of the letter referred to was read also by the Corresponding Secretary.

Professor Johnson offered the following Resolutions, which where adopted, and copies ordered to be transmitted to the American Academy at Boston, and to the Library Committee of Congress.

Resolved, That the memorial of the American Academy of Arts and Sciences of Boston, to the Joint Library Committee of Congress, asking for the publication of a larger number of copies of the scientific volumes containing the results of the late South Sea Exploring Expedition, meets the cordial approval and concurrence of the Academy of Natural Sciences of Philadelphia.

Resolved, That in the view of this Academy, the present number of 100 copies only, printed on public account, is utterly inadequate to supply the demand for this work, especially as about one-half of that number is understood to be distributed in donations to Foreign Governments, while none are allowed to Scientific Societies at home.

Resolved, That while the results of other American Exploring

Expeditions, and of other scientific labors, performed in obedience to the requirements of Government, have, by a just and liberal policy, been made widely known to the public, the present course of *printing* 100 copies only of the labors of the South Sea Expedition, and which, therefore, scarcely deserves the name of a *publication*, does equal injustice to the nation which has borne the expense, and to the meritorious individuals who have performed the scientific duties

Resolved, That this Academy having, by special request of the Navy Department, afforded its aid and counsel in the preparation of the Expedition, deems itself justified in complaining of the treatment which, in common with all the other scientific bodies then consulted, it receives by the existing arrangement,—that of being compelled either to forego the possession of the works in question, or to pay such a price as private speculation may affix to public documents prepared by public officers, and the entire expense of which (with an exception too insignificant to mention) has been defrayed out of the public treasury.

Meeting for Business, February 24, 1846.

VICE PRESIDENT MORTON in the Chair.

The Committee on Mr. Conrad's paper, read 6th January last, reported in favor of publication.

Descriptions of New Species of Fossil and Recent Shells and Corals.

By T. A. CONRAD.

TERTIARY FOSSIL SHELLS.

CERITHIUM?

Cerithium? cælata. Plate 1, fig. 19. Turrited, whorls with four revolving ribs on each, the superior pair large, elevated, and obliquely crenate; the lower pair small, approximate, inferior one very near the suture; lines of growth profoundly undulated.

Locality. Island of Huaffo, near Cape Horn. In Tertiary clay. Dr. James Eights.

This remarkable shell is imperfect in the last volution, and it is uncertain whether it should be referred to Turritella or Cerithium. The rib in the

middle of the whorls is largest, and the crenæ have a different direction from those in the superior rib. A variety occurs with only three ribs, one of the inferior pair being wanting

TELLINA.

TELLINA *Huaffoensis*. Plate 1, fig. 20. Subtriangular; right valve ventricose; anterior side subcuneiform; margin obliquely truncated, extremity rounded; beaks medial; posterior margin regularly rounded; basal margin nearly straight in the middle; surface without other lines than those of growth.

Locality. Occurs with the preceding.

These two fossils are imbedded in drab colored clay, the geological age of which is uncertain. I have no doubt, however, that it is posterior to the Eocene period.

MIOCENE SPECIES.

EULIMA.

EULIMA *eborea*. Plate 1, fig. 21. Subulate, whorls 9; suture slightly defined; aperture somewhat oblique, ovate-acute.

Locality. Suffolk, Virginia.

E. *migrans*. Plate 1, fig. 22. Subulate, very narrow or slender; suture indistinct; aperture direct, oblong-ovate, acute.

Locality. Occurs with the preceding.

Odostomia.

Odostomia limnia. Plate 1, fig. 4. Subfusiform, polished, whorls 4; convex; suture impressed; aperture oblong-ovate, half the length of the shell; columella slightly folded.

Locality. Yorktown, Virginia.

O. *protexta*. Plate 1, fig. 5. Subulate, minutely cancellated, with five volutions, those of the spire being subangulated near the base; labrum subangulated above the middle; columella with a prominent fold in the middle.

Locality. Yorktown, Virginia.

Delphinula.

Delphinula arenosa. Discoidal, whorls 3, slightly convex; minutely striated longitudinally; base regularly convex: umbilicus profound. Diameter $\frac{1}{8}$ of an inch.

Locality. Yorktown, Virginia.

D. lyra. Plate 2, fig. 27. Vide Journ. A. N. S. vol. vii, p. 141.

Locality. Suffolk, Virginia.

Bulla.

Bulla subspissa. Plate 1, fig. 29. Oblong-oval, thick, ventricose in the middle; labium rounded or ventricose; margin of labrum straight above: base minutely umbilicated.

Locality. Calvert Cliffs, Maryland.

Bonellia.

Bonellia lineata. Plate 1, fig. 23. Vide Proceed. A. N. S., vol. i. p. 32.

CALYPTRÆA.

SUBGENUS DISPOTŒA, *Say.*

All the species of this genus found in the United States belongs to Say's genus Dispotœa, which forms a very natural and distinct group, if the characters of the shells are any criterion of generic distinction. The following list of species occur in the Miocene strata of the Union:

C. (Dispotœa) corrugata, *Brod.* } Recent on the coast of Central Ame-
D. ramosa, *Con.* } rica, and fossil in Virginia.

C. (Dispotœa) costata, *Say,* } Recent; coast of Central Hmerica.
C. rugosa, *Brod.* } Fossil in Maryland.

C. (Dispotœa) multilineata, *Con.* Fossil. Wilmington, North Carolina.
C. (Dispotœa) dumosa, *Con.* " " "

TROCHUS.

Trochus peralveatus, Plate 1, fig. 25. Vide Proceed. A. N. S., vol. i. p. 30.

MYODORA.

Myodora arenosa, CON. (*Pandora arenoso,* CON.) Foss. Shells of Tert. Form., p. 4, pl. 1, fig. 3.

Eocene species.

AMPULLARIA?

Ampullaria? perovata. Plate 1, fig. 16. Ovate, body whorl ventricose; spire conoidal? aperture subovate, half the length of the shell.

Locality. Claiborne.

I possess but one imperfect specimen of this shell. It is rather elevated for an *Ampullaria;* but to this genus or to *Paludina,* the form of the aperture more nearly allies it, than to any marine genus which is known to me.

CARICELLA.

Shell pyriform, with ribs or spines: spire short, apex thickened or papillated; beak somewhat produced and slightly curved, pointed, not emarginate at base; columella with four or five oblique, prominent, compressed plaits, decreasing in size towards the base, as in *Mitra.*

In my publication entitled "Fossil Shells of the Tertiary Formations,' I propose the above name for a group of Claiborne shells, and referred it as a subgenus *Turbinella,* but the characters are sufficiently distinctive to constitute a genus. The want of an emarginate base widely separates it from *Mitra* or *Voluta.* The labrum is always simple, without teeth, and thin. The following species may be designated: *C. bolaris,*

(*Mitra*,) CON. *C. pyruloides*, (*Turbinella*,) CON. *C. prætenuis*, CON.

C. doliata, { *Voluta prisca*, CON. / *V. Cooperii*, LEA.

This genus, so far as I know, occurs only in the Eocene strata.

CARDIUM.

CARDIUM *Nicolleti*. Plate 1, fig. 14. Vide Proceed. Acad. N. S. vol. 1. p. 33.

ANOMIA.

Anomia jugosa. Plate 1, fig. 14. Vide Proceed. A. N. S. vol. 1, p. 310.

POLYPARIA (SILURIAN.)

CYATHOPHYLLUM, LAM.

C. CALOPHYLLUM? *pustulatum*. Plate 1, fig. 24. Turbinate, somewhat curved towards the base, and with numerous elevated pustules, most of which have a central perforation:

Locality. State of Ohio, in Silurian limestone, Dr. Riley.

The rays are visible on only a small portion of the specimen, the rest being imbedded in compact gray limestone.

EOCENE SPECIES.

TURBINOLIA.

Turbinolia elaborata. Plate 1, fig. 30. Subcuneiform; base acute, incurved, lamellæ thin, numerous, branched, smooth becoming very irregular or sinuous where they approach the centre; sides profoundly sulcated or ribbed, the ribs densely and distinctly porous, many of them divaricated. the intervals with remote transverse lamellæ.

Locality. Near City Point, Virginia.

T. pileolus. Plate 1, fig. 26. Vide Proceed. A. N. S., vol. 1, p. 327.

MADREPORA.

Madrepora vermiculosa. Ramose, branches cylindrical; cells remote, unequal, a little prominent, interstices with thick, equal, vermicular striæ. minutely granulated.

Locality. Occurs with the preceding.

This is a rare species; the undating striæ are large and ornamental.

DEVONIAN SHELLS.

MONOTIS, *Bronn*.

This genus occurs in the Devonian shales. I have not observed a species in any other formation.

Monotis radians.

SYN. *Pterinæa radians*. Journ. Acad. Nat. Sci. vol. viii. p. 252, pl. 15 fig. 1.

Monotis Poulsoni. Plate 1, fig. 32. Suborbicular, ventricose, not oblique. ribs about 44 in number, obtusely rounded, interstices nearly flat, about as wide as the ribs, with minute transverse wrinkles; umbo broad and the summit prominent; anterior and posterior margins rounded.

Locality. Jersey shore, Lycoming county, Pennsylvania. (Devonian shale.)

This beautiful species occurs in a dark shale of the same geological age and appearance as the shale of the Chemung Narrows in New York, which is a part of the Devonian System.

It is dedicated to my friend Charles A. Poulson, Esq , to whose splendid collection it belongs.

M. elevata. Plate 1, fig. 31. Obliquely oval, somewhat ventricose, ribs about 42 in number, prominent, acutely rounded, interstices very narrow, except towards the anterior hinge margin, where the ribs are larger; anterior and posterior margins nearly straight; anterior side very short.

Locality. Occurs with the preceding species in the same rock.

Cabinet of Mr. Poulson.

SILURIAN SPECIES.

AVICULA.

Avicula ferruginea. Plate 1, fig. 28. Subrhomboidal; left valve profoundly ventricose; anterior side profoundly contracted; umbo very prominent; extremity of anterior wing angulated; the margin beneath slightly emarginate; margin of posterior wing straight and direct.

Locality. Jersey shore, Lycoming county, Pennsylvania.

Cabinet of Mr. Poulson.

This speeies abounds in the Fossiliferous iron ore of the Middle Silurian series.

CARBONIFEROUS SPECIES.

Strophomena.

Strophomena nassula. Hinge area wide; valves with approximate acute radiating striæ, and finer concentric lines; one valve flat, with three or four large concentric undulations.

Locality. Jersey shore, Lycoming county, Pennsylvania. Mr. Poulson.

RECENT SHELLS.

Cyrena.

Cyrena Floridana. Plate 1, fig. 1. Triangular, subequilateral, ventricose summits prominent, concentrically striated; posterior side with an obtuse fold near the margin; color whitish, varied with violaceous, both externally and internally.

Locality. Tampa Bay, Florida.

Venus.

Venus cuneimeris. Plate 1, fig. 13. Inequilateral, triangular; ventricose anteriorly; flexuous and compressed posteriorly; posterior side cuneiform; surface with obtuse concentric ribs, profound on the umbo, and with minute radiating raised lines; color yellowish, varied with fulvous or brown, sometimes in spots, in other specimens with rays; within purple and white, with a whitish margin.

Locality. Tampa Bay.

Nucula.

Nucula eborea. Plate 1, fig. 4. Ovate-acute, ventricose, with minute, concentric, very regular lines; surface highly polished, ivory white; anterior side rostrated, pointed, rather longer than the posterior side.

Locality. Keys of Tampa Bay: rare.

Modiola.

Modiola papyria. Plate 1, fig. 8. Ovate-oblong, extremely thin, pellucid; ligament margin long, rectilinear; posterior margin obliquely truncated; basal margin slightly contracted; color greenish with brown angular spots.

Locality. Tampa Bay.

Astarte.

Astarte flabella. Plate 1, fig. 3. Ovate-triangular, profoundly compressed, and having ten flattened radiating ribs; posterior basal margin obliquely truncated; color white, with fulvous spots.

Locality. Egmont Key, Tampa Bay.

This species approaches *A. radians*, Con., a Miocene fossil, but it is not so flat, and has fewer, wider, less prominent ribs.

A. triquetra. Plate 1, fig. 6. Very small, triangular, elevated, equilateral and symmetrical, ventricose, polished, white, sometimes brown or purple on the disk in form of a broad ray.

Locality. Tampa Bay.

Osteodesma, *Desh.* (Lyonsia, *Turton.*)

Osteodosma hyalina? Plate 1, fig. 7. A variety of the northern species, more elongated than those of the eastern coast. I have some doubts of the specific identity.

Solecurtus.

Solecurtus fragilis, var. Plate 1, fig. 10. Oblong, straight, color violaceous, rayed with bluish white; epidermis olive, the rays visible upon it; interior rib oblique; teeth two in each valve, very unequal in size.

Locality. Egmont Key, Tampa Bay.

Lucina.

Lucina nassula. Lentiform, equilateral, with concentric lamelliform striæ, distant above, approximate towards the base: and with approximate radiating prominent lines; posterior side compressed towards the margin, and with

one or two of the radiating striæ larger than the rest; lunule large, ovate-acute, prominently striated; inner margin deeply crenulated.

Locality. Tampa Bay, Florida.

CORBULA.

Corbula limatula. Plate 1, fig. 2. Subtriangular, inequilateral, polished, concentrically striated, the striæ of the lesser valve finer and less distinct than those of the opposite valve; posterior extremity truncated; summits prominent; color whitish, tinged with pale brown on the umbo.

Locality. Gulf of Mexico. Dredged up on the sounding lead in deep water off the coast of Florida.

POLLIA.

Pollia tincta. Plate 1, fig. 9. Short, subfusiform; whorls 7, somewhat channelled or contracted above; longitudinal ribs large, remote; revolving lines robust, alternated with fine lines; lines of growth well defined, becoming prominent wrinkled lines on the spire; color greenish-white, varied with large irregular brown or ferruginous spots; aperture half the length of the shell; labrum striated within, margin plicated; labium with a prominent fold near the summit, and somewhat corrugated towards the base.

Locality. Mouth of Manatu river, of Tampa Bay, Florida, inhabiting sand bars.

P. cancellaria. Plate 1, fig. 12. Fusiform, with longitudinal plicæ, and more elevated, distant, undulated, revolving costæ, and intermediate fine lines; whorls longitudinally rugose; aperture half as long as the shell; labrum with distant, acute, prominent lines within: columella distinctly plaited at base: beak recurved; color cinereous.

Locality. Ship Island, Gulf of Mexico.

Murex cellulosa. Short-fusiform, with large, prominent revolving lines or costæ, the interstices with transverse wrinkled lines, largest on the varices, and giving the shell a cellular aspect; beak much curved; color cinereous: aperture small, obovate, purplish within.

Locality. Tampa Bay. Inhabits oyster beds.

M. Tampaensis. Fusiform, with acute varices, and distant revolving costæ, about eight in number, from angle of body whorl to base; spire scalariform; whorls with two revolving ribs on each; labium with obtuse teeth: color cinereous, with purplish brown.

Locality. Occurs with the preceding species.

M. ostrearum. Fusiform, with revolving ribs alternated in size, and with longitudinal wrinkles; spire elevated, scalariform; base umbilicated: within livid.

Locality. Occurs with the preceding.

MARGINELLA.

Marginella succinea. Plate 1, fig. 17. Elevated; labrum sinuous, aperture contracted above, comparatively wide at base; columella 4-plaited; color amber; margin of labrum entire.

Locality. Tampa Bay. Very rare.

M. albilabris. Short-subovate, of an olive color, with a white, much thickened margin, extending over the base; labrum straight, denticulate within; columella with one obscure plait at base.

Locality. Tampa Bay.

OLIVA.

Oliva mutica. Plate 2, fig. 34. Common in St. Joseph's Bay, Florida, living in the sand in shoal water, leaving a trail by which its habitat can readily be discovered.

TROCHUS.

Trochus Tampaensis. Plate 2, fig. 35. Conical; whorls 6½, concave; with revolving, approximate, densely beaded lines, alternated in size; base flat, striated, lines crenulated by transverse wrinkles; umbilicus moderate, forming a rather deep canal behind the labium; color whitish-brown and dark purple, variegated.

Locality. Tampa Bay.

Triton lineolatum. Plate 1, fig. 18. Elevated, with brown revolving lines; spire scalariform, with numerous varices or costæ on the body whorl; they are generally smaller, and crenulate the revolving lines; labrum with four teeth within. Length ⅜ of an inch.

Locality. Tampa Bay.

Cerithium protextum. Subulate, elongated, with longitudinal curved acute costæ, and fine revolving lines; whorls 15, slightly convex; ribs divided and somewhat dislocated by an impressed line below the suture; color purplish-black; within the same.

Locality. Tampa Bay?

The specimen described is more than three-fourths of an inch long, but the usual size is less than half an inch.

BULLA.

Bulla succinea. Plate 1, fig. 5. Cylindrical, very thin, diaphanous, of an amber color, and marked with crowded, minute, revolving, wrinkled lines; columella concave or channelled towards the base; labrum straight; summit above the line of the apex.

Locality. Tampa Bay.

CREPIDULA.

Crepidula maculosa. Subovate; anterior side flattened; back acutely

rounded; umbo compressed; color white, with irregular brown spots somewhat in ray-like series. Length $1\frac{1}{8}$ inch. Breadth $\frac{7}{8}$ inch.

Locality Mullet Key, Tampa Bay.

DENTALIUM.

Dentalium chorcum. Curved above, inclining to be straight inferiorly, thin, translucent, very slender, very gradually tapering to a very acute apex, white, without lines, highly polished. Length $\frac{7}{8}$ inch.

Locality. Southern coast of Florida.

Dr. Morton offered the following, which was adopted:

Resolved, That the 8th Vol. of the Journal of the Academy be presented to M. D'Orbigny, of Paris.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. MARCH AND APRIL, 1846. No. 2.

Stated Meeting, March 3, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Bulletin de la Sociéte Imperiale des Naturalistes de Moscou. Nos. 2 and 3, for 1843. From the Society.

Verhandlingen der Kaiserlich-Russischen Mineralogischen Gesellschaft zu St. Petersburg. 2 vols. 1843 and 1844. From the Society.

A Memoir of James De Veaux, of Charleston, S. C. By Robert W. Gibbes, M. D., of Columbia, S. C. 8vo. From the Author.

Dr. Morton presented a paper by Dr. Robert W. Gibbes, of Columbia, S. C., "On the fossil Squalidæ of the Eocene of the Southern States," which was read and referred to a committee consisting of Mr. Phillips, Dr. Morton and Dr. Hallowell.

A paper by Mr. Edward Harris, "On the difference of level between the waters of the Gulf of Mexico and those of

the Atlantic Ocean," was referred to the following committee: Dr. Elwyn, Dr. Pickering and Mr. Phillips.

Letters were read:

From the Imperial Society of Naturalists of Moscow, accompanying the Nos. of the Bulletin of that Society presented this evening.

From the British Association for the advancement of Science, announcing that a copy of Herschel's Catalogue of Stars had been adjudged to the Academy by the Association, and stating the mode in which it could be obtained.

Stated Meeting, March 10, 1846.

Vice President Morton in the Chair.

The Chairman read a letter from Prof. Locke, dated Medical College of Ohio, Feb. 2, 1846, containing a notice of a fossil Asterias from the blue limestone of Cincinnati, with a drawing of the same. Referred to the following committee: Dr. Leidy, Dr. Morton and Dr. Pickering.

The Chairman also read a portion of a letter from J. G. Norwood, M. D., of Madison, Indiana, dated Feb. 25, 1846, desiring the communication to the Academy of an accompanying printed description and figures of a new fossil fish from the Palæzoic rocks of Indiana, by Drs. Norwood and D. D. Owen, for which they propose the name *Macropetalichthys rapheidolabis.*

"This is (as far as is known to the describers) not only the first instance of finding scutcheoned fishes in this country, but also the lowest position in which remains of vertebratæ have been found, if we except defensive fin bones, which occur in New York, nearly in the same geological position,—viz: in the corniferous group—and the scales of fishes, which the Professors Rogers traced throughout the Clinton group of Pennsylvania and Virginia."

Stated Meeting, March 24, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen, in spirits, of Loligo Bartramii, Lesueur, from Caraccas. Presented by Dr. H. McMurtrie.

Sterna of fourteen species of N. American birds. Presented by Mr. William Gambel.

Specimen of Septaria, from the vicinity of Fort Barber, Barber Co., Alabama. From Dr. Charles Kenworthy, through Dr. Watson.

A fine collection of fossils, from the green sand near Burlington, N. J., consisting of Baculities ovatus, Ammonites placenta, A. Delawarensis, Scaphites Cuvieri, Nautilus Dekayi, with undertermined casts of Strombus, Cardium, Pina, Inoceramus, Cucullœa, Turritella, Panopœa, &c. From Mr. Germain, of Burlington, through Dr. Hallowell.

A collection of marine and fresh water shells. From Dr. Hallowell.

DONATIONS TO LIBRARY.

Structure and classification of Zoophytes. By James D. Dana, A. M., Geologist of the U. S. Exploring Expedition, during the years 1838, '39, '40, '41 and '42. 4to: Philadelphia. From the Author.

Memoir on the probable constitution of matter and laws of motion, &c. &c. By J. L. Riddell, M. D. From the Author.

On the Nile alluvium of Nubia, (extracted from the Proceedings of A. N. S.,) being a letter from Prof. Lepsius of Berlin, and an analysis by Prof. W. R. Johnson. From Dr. Morton.

On the Unity of the Human Race, (from the Southern Quarterly Review, No. 17, Jan., 1846.) From Dr. J. C. Nott.

A letter was read from Clot Bey, M. D., dated Cairo, Egypt, Jan 21, 1846, acknowledging the reception of his diploma as a correspondent, and expressing his desire and intention to further the objects of the Academy.

Dr. Morton offered some observations (intended for publication in the American Journal of Science) on the Ethnography and Archæology of the Aboriginal race of America.

Dr. Morton called attention to the cretaceous fossils presented this evening by Mr. Lewis Germain, and especially to the numerous fine fragments of *Ammonites Delawarensis*, of which only a single specimen had hitherto been discovered in the cretaceous beds of New Jersey or Delaware. Even that specimen had been lost or mislaid, and there remained no voucher for the species, excepting an uncertain fragment from Alabama, which is now identified with the A. Delawarensis, by means of Mr. Germain's collection.

The *Scaphites Cuvieri* is more perfect than any other hitherto found, excepting only the specimen in Mr. Conrad's cabinet, and which is figured in Dr. Morton's synopsis of organic remains.

The *Baculites ovatus* of Say, heretofore a very rare species, is here represented by nearly twenty finely characterised specimens. The Nautilus Dekayi is also almost perfect; and the Ammonites placenta, Pholadomya occidentalis, Pecten quinquecostatus, a Strombus, Turritella, and various other genera, are found in this remarkable series, which was obtained from a single marl excavation, about five miles east of Burlington, in New Jersey.

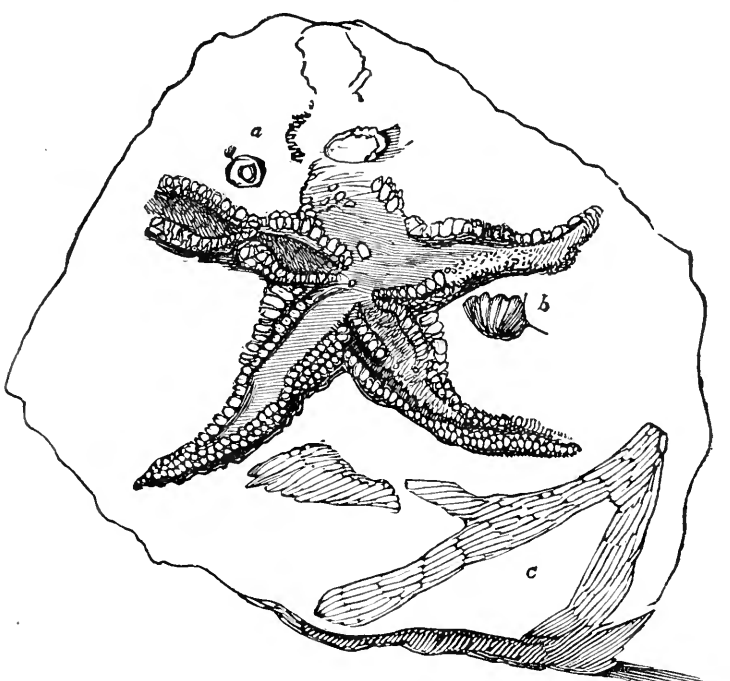
Meeting for Business, March 31, 1846.

VICE PRESIDENT MORTON in the Chair.

The Committee to whom was referred the following notice by Prof. Locke, (contained in a letter addressed to Dr. Morton, and read at the meeting of March 10th,) of an Asterias from the blue limestone of Cincinnati, reported in favor of publication.

"I herewith send you a drawing of an Asterias from the blue limestone of Cincinnati. It seems to be five-rayed and *free*, thus

differing essentially from the "Agelacrinites" (Asteriacrinites) of the New York reports, which is also found here, attached, almost always, to a Strophomena or some other large shell, but rather rare. This last it will be recollected, has five rays extended on an acicular disk, reaching even beyond the rays. The specimen from which this drawing has been made, is so far as I know, the only one which has been found here; it is therefore rare. Whether it be identical with an Asterias described by Dr. Troost as occurring in the rocks of Tennessee, I cannot say, as I have never seen his account.



Asterias antiquata.—Blue limestone, Cincinnati.

a, An entrochite.

b, Atrypa minuta?

c, Ceriopora milliporacea. Locke.

"I saw in the proceedings of your Society a notice of Dr. Taylor's specimens, describing them as from the *carboniferous limestone*. Mr. Featherstonhaugh and Dr. Troost have given authority, I believe, for calling this limestone the carboniferous, and in a paper read before our geological Association, I maintained the same views chiefly from *Lithological* characters. The more accurate test by the fossil remains, I am convinced determines our limestone to be the equivalent of the Lower Silurian. With this view it is interesting to find the Asterias at so low a point in the geological column; as it was formerly supposed not to extend below even the secondary rocks."

The Committee on Mr. Edward Harris's paper on the difference of level between the waters of the Gulf of Mexico and those of the Atlantic Ocean, reported in favor of publication.

On the Difference of Level between the Waters of the Gulf of Mexico and those of the Atlantic Ocean.

By EDWARD HARRIS.

While on a passage along the coast of Florida in the spring of 1844, in the U. S. Revenue Cutter Nautilus, Capt. Waldron, having on board Mr. Stacy, U. States Commissioner for the inspection of the Lighthouses, we stopped on the 28th of April to examine at Key Biscayne, the ruins of the lighthouse burnt by the Indians in 1836. The next day we took the boats with kegs to procure water for the vessel; passed inside of Cape Florida, and ascended the Miami River about five miles to where it issues from the Everglades. I was surprised to find that the water from the everglades falls into the river over an exceedingly porous limestone rock resembling Travertine, so open, that in numerous places at the foot of the rapids, which are about two hundred yards in length, the water spouts up from the small round holes in the rock, in little natural fountains of from one foot to eighteen inches in height. I estimated the fall at from seven to eight feet, which cannot be far from the truth, as there is a mill at their foot for grinding the Coontic root, (*Zamia integrifolia*,

from which the Florida arrow root is made,) having a dam six feet high,with a fall in the tail-race to high water in the river, of not less than 18 inches. There had been a severe drought of five months, and the bed of the everglades was quite dry, with the exception of the brook running over the rapids, which, as far up as I explored it, lay upon the travertine rock, at about eighteen inches below the level bed of the everglades of hard sand, and covered with a strong wiry grass from two to three feet high. This fact of the fall of the waters of the everglades into the Atlantic, has, so far as I can ascertain, hitherto remained unpublished; nor have I been able to learn that it was known to our officers during the war. Their operations were principally on the Gulf side of the Peninsula, where they entered and passed long distances into the everglades without meeting with obstruction to the boat navigation. It appears to me that, considered in connection with the great rapidity of the Gulf stream in passing through the Straits of Florida, indicating a flow from a higher level, this fall is a very strong link in the chain of evidence which goes to prove that the sea is at a higher level on the Western than on the Eastern coast of the peninsula of Florida.

ELECTION.

The Rev. Thomas S. Savage, M. D., of Cape Palmas, Africa, was elected a Correspondent.

Stated Meeting, April 7, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

A large collection of Reptilia, in spirits, from Brazil. Presented by Mr. Edward Donnelly, through Mr. Cassin.

A very fine collection of African shells, presented by the Rev. Dr. Savage, of Monrovia, through Mr. Phillips, consisting of the following:

Solen Guineensis
Thracia: ———
Mactra Saulii
M. exoleta?
Lucina ———
L. columbella
Psammobia galathea?
Tellina strigosa
Cyrena ———
Venus plicata
Venus ———
V. rotundata
Cytherea floridella
C. prostrata
Cardium ringens
C. costatum
Cardita ajar
Arca senilis
Pecten ———
Helix Blandingiana
Achatina involuta
Pupa capitata
Cerithium muricatum.
Cerithium granulatum
Melania aurita
Melampus ———
Pleurotoma ———
Cancellaria cancellata
Triton: ———
Fusus nifat
Buccinum ———
Purpura coronata
P. neritoidea
Terebra senegalensis
Cassis fasciata
Murex cornutus
Strombus bubonius
Turritella ———
Marginella cornea
M. Adansonii
M. persicula
Oliva acuminata
O. hiatula
Voluta Neptuni
Conus papilionaceus

Mounted specimen of Strix nyctea, from the vicinity of Philadelphia. From Mr. John Churchman, through Mr. Cassin.

Two specimens of fossiliferous iron ore, from the vicinity of Cumberland, Md. From Prof. Johnson.

Albino specimen of Scalops Canadensis, from Moorestown, N. J. From Mr. Edward Harris.

DONATIONS TO LIBRARY.

Report of the Exploring Expedition to the Rocky Mountains in 1842, and to Oregon and California in 1843 and 1844. By Brevet Capt. J. C. Fremont. Washington: 1845. From Jos. R. Ingersoll, Esq.

Another copy of the same. From Prof. Johnson.

Report on Atlantic Mail Steamers, by the Committee of Congress on Post Offices and Post Roads. Read March 27th, 1846. From Jos. R. Ingersoll, Esq.

Seventeenth Annual Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania. Philadelphia, 1846. From Dr. Morton.

The London Athenæum for Aug. and Sept., 1843, containing several papers of interest in Natural Science. From Dr. Wm. Blanding.

The following pamphlets were received from Richard K. Haight, Esq., of New York.

Memoire sur le traitement de l'alienation mentale, par M. le Dr. A. Petit. Paris, 1843. De la meningite cerebro-rachidienne, et de l'encephalo-meningite epidemiques: par J. F. Rollet. Paris, 1844. Nouvelle methode de traitement de l'empoisonnement par l'arsenic, &c.: par M. Rognetta, D. M. P. Paris, 1840.

The Chairman read an extract of a letter from M. Agassiz, dated from Neufchatel, Switzerland, acknowledging the receipt of his notice of election as a Correspondent, and announcing his intention of visiting this country for scientific purposes during the present year.

Prof. Johnson informed the Society that he had presented in person to the Chairman of the Joint Library Committee of Congress, a copy of the resolutions passed at a recent meeting of the Society,* asking for an increased edition of the scientific reports of the late South Sea Exploring Expedition, and stated that the committee were favorably disposed towards the measure.

*See page 18 of last number.

Stated Meeting, April 14, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Fine specimen of Pecten Mortoni, Ravenel; from the Miocene of South Carolina. From Dr. Morton.

An additional series of fossils from the green sand near Burlington, N. J., including also fine specimens of Clypeaster florealis, and Trochus leprosus; also a large and a small tooth and two vertebræ of Mosasaurus occidentalis. From Mr. Lewis Germain, of Burlington.

Dr. Morton deposited ten mummied Peruvian crania, and two entire mummied bodies in their wrappings; collected by Mr. William A. Foster, of this city, at the cemetery of Arica.

Specimen of Pholadomya occidentalis, from the cretaceous deposits of New Jersey. From Dr. Morton.

DONATIONS TO LIBRARY.

American Quarterly Journal of Science and Agriculture; by Drs. E. Emmons and A. J. Prince. Vol. 2, No. 2. Albany, 1845. From the Editors.

American Journal of Science and Arts. 2d Series, No. 2. March, 1846. From the Editors.

Annals of the Lyceum of Natural History of New York. Vol. 4, No. 5. New York: 1846. From the Lyceum.

Notices of new localities of rare minerals and reasons for uniting several supposed distinct species. By Francis Alger. (From the Boston Journal of Natural History.) From the Author.

Descriptions of some new species of shells. By John H. Redfield. (From the 4th vol. of Annals of Lyceum of Natural History of New York.) From the Author.

Mineral lands of the United States. A message from the President of the United States in reply to a resolution of

the House of Representatives of 6th of January last, concerning the mineral lands of the United States. From J. R. Ingersoll, Esq.

Dr. Morton read the following extract of a letter addressed to him by Prof. Bailey, of West Point.

"I have lately hit upon some processes for revealing vegetable structure in anthracite coal, which have yielded results of unhoped for interest and beauty. I get, not mere traces of parenchymatous tissue, as by Schultz's process, described in Silliman's Journal, No. 1, new series, but I readily obtain surfaces of *several square inches*, entirely covered over with *dotted* or *scalariform vessels*, (bothrenchyma) in so perfect a state, that their minute markings may be seen as easily as upon the vessels of a recent plant.

"I can prepare these, either as opake or transparent objects, and all to whom I have shown them, including Torrey, Gray, Prof. Henry and others, think them very beautiful.

"A brief notice of these will appear in the forthcoming number of Silliman's Journal."

Dr. Morton offered some remarks upon the additional fossils from Burlington Co., N. J., presented this evening by Mr. Lewis Germain. Among the most remarkable are three specimens of *Clypeaster florealis*, of which only a single imperfect specimen had hitherto been found, and which had served the purpose of specific description. The series also contains a fine specimen of the *Trochus leprosus*, not before found north of the cretaceous beds of Alabama. The characteristic species, *Pecten quinquecostatus*, and *Baculites ovatus*, are also among Mr. Germain's collections, together with a very large and a small tooth, and two vertebræ of the *Mosasaurus occidentalis*, in admirable preservation.

Dr. Morton also made the following observations on the Peruvian remains deposited by him this evening.

These ten crania and two mummied bodies, were exhumed from the Indian cemetery at Arica, under the direction of our

member, Mr. Wm. A. Foster, now resident in Lima. "This cemetery," observes Mr. Foster, "lies on the face of a sand-hill, sloping towards the sea. The extent of surface occupied by these tombs, as far as we explored, I should say was five or six acres. In many of the tombs three or four bodies were found clustered together, always *in the sitting posture*, and wrapped in three or four thicknesses of cloth, with a mat thrown over all."

The most interesting circumstance connected with these heads is the fact that with two exceptions they present the artificial form of horizontal elongation, though in very variable degrees. The most casual notice will convince any one, that this conformation has been in part produced by compresses on the forehead, and partly, as Dr. Goddard has suggested, by the use of simple rotary bandages. Thus a double compress has been applied to the forehead, one bearing on each side of the frontal suture of infancy; these have been kept in their places by a bandage brought from the base of the occiput obliquely over the forehead; while the parietal bones have been depressed by carrying the same bandage alternately over the top of the head, immediately behind the coronal suture.

Any person who is acquainted with the form and pliableness of the infant head at or soon after birth, will readily conceive how effectually the above plan would operate in moulding the cranium into the elongated or cylindrical form; for while it prevents the anterior portion from rising, and the sides from expanding, it allows the occipital region an entire freedom of growth; and thus without diminishing the volume of the brain, merely forces it into a different, though unnatural direction, and preserves, at the same time, the symmetry of the whole structure.

The series of skulls presents, in a most satisfactory manner, all the grades of this process; leaving no longer a doubt as to the precise means by which it has been accomplished.

Stated Meeting, April 21, 1846.

VICE PRESIDENT MORTON in the Chair.

Mr. Gambel read a paper containing remarks on the birds of Upper California, which was referred to a com-

mittee consisting of Messrs. Cassin, Townsend and Woodhouse.

Dr. Morton read a description of two new species of fossil Echinodermata from the Eocene of the United States. Referred to Prof. Johnson, Mr. R. C. Taylor and Dr. Zantzinger.

Meeting for Business, April 28, 1846.

Vice President Morton in the Chair.

The Committee to whom was referred the following paper. read 3d of March last, reported in favor of publication.

On the Fossil Squalidæ of the United States.

By Robert W. Gibbes, M. D., of Columbia, South Carolina.

Upon a careful comparison of the descriptions and plates of the admirable work of Agassiz, "*Sur les Poissons Fossiles*," belonging to the Library of the South Carolina College, I have identified in my collection a large number of the teeth of *Squalides*. I have three which I cannot refer to any of his species, and therefore consider them probably new.

1. *Charcharodon megalodon*, Agassiz. Eocene, S. C.

Agassiz refers this to the *Miocene*, as Lord Enniskillen has a specimen from the "molasse" of Switzerland, and Mr. Charlesworth notices it from "the crag" of England. My finest specimen measures six inches in length, and five across the root.

2. *Charcharodon rectideus*, Agassiz. Post Pliocene, S. C., from Eocene.

This measures five inches in length, and four and a quarter inches across the base of the root. It was sent to me as found in an excavation on the suburbs of Charleston, for the foundation of a building at the rail road depot. Beds of *Post Pliocene* underlie that city, and among the shells of that formation these teeth (two) were found. If no mistake occurred, (as my friend had them twelve years,) and they were actually found here, they were probably washed down from the *Eocene* marl, which is only a few miles off. A fine *C. megalodon* was found in the harbor of Charleston, and occasionally other *Eocene* and *Miocene* remains are found on the beaches close by.

I have classed it with my *Eocene* specimens, as Agassiz, from a specimen in the "Museum d'Histoire Naturelle de Paris," has referred it to this period. He says: "La nature des fragmens attachés a l' os basilaire d' une

de ces dents me fait presumer que c'est du *calcaire grossiere.*" Note, p. 250, tom. iii.

3. *Charcharodon leptodon*, Ag. Eocene, S. C. Locality unknown. Ag.
4. *Charcharodon megalotis*, Ag. Eocene, S. C. Tertiary. Ag.
5. *Charcharodon productus*, Ag. Eocene, S. C. Swiss molasse. Eocene Ag.
6. *Charcharodon sulcidens*, Ag. Eocene, S. C. Tertiary. Ag.
7. *Chorcharodon angustidens*, Ag. Eocene, S. C. Tertiary of Kressenburg. Ag.
8. *Charcharodon heterodon*, Ag. Eocence, S. C. Tertiary of Normandy. Ag.
9. *Charcharodon semiserratus*, Ag. Eocene, S. C. Isle of Malta. Ag.
10. *Charcharodon turgidus*, Ag. Eocene, S. C. Sands of Flonheim. Miocene. Ag.
11. *Charcharodon lanceolatus*, Ag. Eocene, S. C. Ferruginous sand, Kressenburg. Ag.
12. *Charcharodon polygurus*, Ag. Eocene, S. C. Swiss molasse. Eocene. Ag.
13. *Charcharodon auriculatus*, Ag. Eocene, S. C. Dax. Miocene. Ag.
14. *Charchorodon Mortoni*, Gibbes. Eocene, S. C. New.

This tooth is four inches long, three inches across the root, *an inch and a half thick* from the most prominent part of its anterior surface; it is inequilateral, with fine uniform dentelures; both the anterior and posterior surfaces are convex, though the former trebly so; the enamel is thin and cracked in striæ, similar to the Lamna elegans; the root or basilar bone is very thick and concave; the right extremity slightly exceeding the left.

I propose to name this fine species after Dr. S. G. Morton, who was the first to illustrate our Tertiary Geology.

15. *Corax* (galeus) *pristodontus*, Ag. Eocene, S. C. Chalk of Maestricht. Ag.
16. *Corax* (galeus) (new?) Eocene, S. C.
17. *Galeocerdo minor*, Ag. Eocene, S. C. Swiss molasse. Ag.
18. *Galeocerdo latidens*, Ag. Eocene, S. C. Unknown. Ag.
19. *Hemipristis serra*, Ag. Eocene, S. C. Swiss molasse. Ag.
20. *Hemipristis paucidens*, Ag. Eocene, S. C. Unknown. Ag.
21. *Lamna elegans*, Ag. Eocene, S. C. Crag and London clay. Ag.
22. *Lamna crassidens*, Ag. Eocene, S. C. Inferior oolite, &c. Ag.
23. *Lamna Hopei*, Ag. Eocene, S. C. Isle of Sheppy. Eocene. Ag.
24. *Lamna cuspidata*, Ag. Eocene, S. C. Swiss molasse. Ag.
25. *Otodus macrotus*, Ag. Cretaceous, N. J. London clay. Ag.
26. *Otodus appendiculatus*, Ag. Eocene, S. C. Chalk. Ag.
27. *Otodus apiculatus*, Ag. Eocene, S. C. Calcaire de Veteuil. Eocene? Ag.
28. *Otodus obliquus*, Ag. Eocene, S. C Characteristic of London clay. Ag.

29. *Oxyrrhina ziphodon*, Ag. Eocene and Miocene, S. C. Gypsum of Montmartre. Ag.
30. *Oxyrrhina hastalis*, Ag. N. Jersey, and Eocene, S. C. Swiss molasse Eocene, Ag.
31. *Oxyrrhina mantelli*, Ag. Eocene, S. C. Chalk of England. Ag.
32. *Oxyrrhina*, (new?) Eocene, S. C.
33. *Oxyrrhina*, (new?) Eocene, S. C.
34. *Oxyrrhina retroflexa*, Ag. Miocene, S. C. Locality unknown. Ag.
35. *Pristis acutidens*, Ag. Eocene, S. C. Bagshot, England. Eocene. Ag.

Rays.

36. 1. *Myliobates micropleurus*, Ag. Eocene, S. C. London clay. Ag.
    2. *Myliobates Owenii*, Ag. Eocene, S. C. London clay. Ag.

Palatum Piscium.

I have several specimens of what is figured by W. Smith among the specimens from the crag of England (in his prints on colored paper of "Strata Identified by Organized Fossils," 1816,) as *palates of fishes*. I suppose these are what Mr. I. Lea speaks of (in Contributions to Geology, p. 203,) as found in the sand of Claiborne, and as figured by Brander. Some of them are mineralized by iron, and others calcareous; all which I have are from the Eocene.

Among my collection from the *Eocene of South Carolina*, I have several fragments of claws and casts of varieties of *Cancer*. Two specimens are well marked, and resemble closely *Cancer punctulatus*, Desmarest, and *Cancer Leachii*, Desm.

I have lately procured a tolerably good specimen of the remarkable fossil sent to the Academy by Dr. E. Ravenel, of S. Carolina, resembling somewhat a Belemnite. I would respectfully suggest the probability of its being the spine of *Myriacanthus paradoxus*, (Agassiz,) deprived, by attrition, of its tubercles. Agassiz, pl. 6, vol. iii, and p. 38, vol. iii.

The Committee on Mr. Wm. Gambel's paper, read at last meeting, reported in favour of publication.

Remarks on the Birds observed in Upper California.

By WILLIAM GAMBEL.

ACCIPITRES.

Cathartes Californianus, Shaw. Californian Vulture.

This immense and interesting bird, rivalling the condor in size, and confined exclusively to the Pacific coast, is particularly abundant in California during winter; when they probably come from Oregon, as they are said to disappear from the region of the Columbia at that time.

It is not always so shy and difficult of approach, as has been reported, and like the Turkey buzzard, it is most so when solitary, but often ventures to the neighbourhood of the towns without much fear of man.*

It is very voracious, and nothing less than the carcase of a horse or cow can make a meal for many of them; but such food is abundant, at least in the fall of the year, where the dry pasturage has been destroyed by fire, accidentally or intentionally, by the Indians. These fires extend over large tracts of country, and in consequence many cattle perish, as well as from the summer drought.

It is not uncommon to see them assemble with the gulls, and greedily devour the carcase of a whale which had been cast ashore; they will also frequently pursue wounded game.

The male in perfect plumage has the skin of the head and neck orange-yellow, and the irides carmine.

Cathartes aura, Linn. Turkey Vulture.

The Turkey buzzard is quite as abundant and familiar in California as it is in the southern parts of the United States. It is seldom molested, on account of its usefulness in ridding the neighbourhood of the towns and farm houses of the refuse of the cattle, which are slaughtered in great numbers.

*I may mention here an instance of the great disposition in the Vultures to become domesticated, and to show how much they differ in character from the other Accipitres with which they are classified. A Condor, which I saw in Valparaiso, Chili, during the early part of last year, was allowed to roam the city at large, and from its remarkable docility received kind treatment from every one. It would follow and walk alongside of a person like a dog, for a considerable distance, and offer no resistance to being handled or have its feathers or wings smoothed down. It would ascend a long hill leading to a part of the city where the foreigners resided, and when tired of the place, or after having obtained all it could procure to eat, it would spread its large wings and soar down to the city, alighting perhaps on a steeple or other lofty point. It would receive the caresses of children, and permit them to beat it with switches, or even to attempt to get upon its back. It was fond of thrusting its bill into my pocket, and under the straps of my pantaloons, at the same time shutting its eyes and allowing me to rub and scratch its head. In fact, I think that I have never met with any bird which exhibited more tameness or greater confidence in man than this large and remarkable Condor. I was informed that several other similar instances had been known there.

The Carrion Crow (*C. atratus*, Wils.) is very common about the Gulf of California, and at Mazatlan, particularly, may be seen around the town in large gangs. In company with them I think I have also seen that new and perfectly distinct species detected in the collection of the Academy, and described by my friend Mr. Cassin.* Probably both may be found in Upper California.

Haliætus leucocephalus, Linn. Bald Eagle.

Abundant; in winter feeding on the ducks and geese which cover the plains in immense flocks.

I have found the nest on high isolated rocks along the coast, containing eggs as early as the middle of February.

An interesting circumstance connected with this noble eagle, as the emblem of our country, is, that it was held sacred by the native tribes of Indians of the coast and interior of California, as I have frequently been informed.

Another large brown Eagle, the *Aquila réal*, (probably the bird of Washington,) is said by the Indians and others to be occasionally observed here.

Pandion Carolinensis, Gmel. Fish Hawk.

Common along the coast, particularly the rocky islands, where they breed. At Santa Catalina I found them nesting on the precipitous cliffs, in February, along with the bald eagles.

Butaëtes Sancti Johannis, Gmel. Rough-legged Buzzard.

Common in the prairie-valleys during winter, keeping much on the ground. The adult in his dark livery, although frequently seen, is much less common than the young.

Buteo borcalis, Gmel. Red-tailed Buzzard.

Very abundant; as also in the interior in the ranges of the Rocky mountains.

Buteo lineatus, Gmel. Red-shouldered Buzzard.

The shrill *kee ou* of this handsome species may be heard at all times around the vineyards and farms of the lower portions of Upper California, where it is more abundant than about Monterey.

Buteo Swainsoni, Bonap. Rocky Mountain Buzzard.
Buteo montana, Nutt. Man., p. 112, 2d ed.
B. vulgaris, Aud., pl. 372, et auc.

This species was first brought from the fur countries by Richardson, who considered it identical with the European *Buteo vulgaris*.

Bonaparte in his comparative list of the birds of Europe and America, distinguishes it by the specific name of *Swainsoni*, quoting Audubon's description and plate of the specimen brought from Oregon by Townsend.

My friend Nuttall retains the common buzzard as an inhabitant of the fur countries, on the authority of Richardson, and refers Bonaparte's synonym to that species, describing this, which he considers sufficiently distinct, under the name of White-throated Buzzard, *Buteo montanus*.

Richardson describes the nest as containing from three to five eggs, equal

* *Cathartes Burrovianus*, Cassin, Proc. Acad. Nat. Sciences, vol. 2, p. 212.

in size to those of the common fowl, and of a greenish white colour, with a few dark brown blotches at the thick end. Townsend, who brought it from the Rocky mountains, found it breeding there in July, the nest containing two white eggs.

A. L. Heermann, M.D., during a recent trip to the prairies, found this species breeding near the Platte River, and also procured the eggs, of which he kindly furnished me with a drawing and description. It is considerably smaller than that of the European buzzard, and differs from it in being pure white, with a few dark brown blotches on the smaller end, while the latter is of a bluish or greenish tinge, with faded marks of a neutral tint, apparently sunk into the shell, and scattering blotches of dark brown. The account given me of its nest by Dr. Heermann agrees so exactly with that of Richardson, that I have no doubt of its being the same bird.

Elanus leucurus, Bonap. White-tailed Elanus.

This active, beautiful hawk, is not unfrequent in California. At the mission of St. John, between Monterey and St. Francisco, I procured three specimens in one day. It flies low and circling over the plains in the manner of a marsh hawk, feeding on the small birds which are so abundant on the ground. It is easy of approach when perched on trees, and utters a very loud shrill cry, particularly when wounded and caught, fighting viciously.

Falco anatum, Bonap. Peregrine Falcon.

Occasionally seen along the coast, nesting on cliffs near the sea.

Falco Columbarius, Linn. Pidgeon Falcon.

Common throughout the Western coast.

Cerchneis Sparverius, Linn. Sparrow Hawk.

This familiar little species is abundant throughout the country.

Astur Fuscus, Gmel. Sharp-shinned hawk.

Our pugnacious and daring little marauder appears to be distributed over the whole of N. America.

Astur Cooperii, Bonap. Cooper's Hawk.

The most remarkable similarity exists between the plumage of this species and the former in every age; and although the great difference in size renders it impossible to mistake them, I think that if we depended upon the plumage alone, no sufficiently distinguishing marks could be given. We find, in fact, in every department of natural science, that those characters, which in one genus or family can be relied upon as showing specific differences, are, in others, almost useless, or at best perplexing.

This bird is common throughout the Pacific coast.

Strigiceps uliginosus, Gmel. Marsh Hawk.

In low valleys or marshes throughout California, the Rocky mountains, and New Mexico, we are sure to find this widely disseminated species.

Bubo Virginianus, Gmel. Great Horned, or Cat Owl.

Common in the wooded regions of Upper California.

Athene socialis, Nobis. Burrowing Owl.

Strix cunicularia, Bonap., Aud., Nutt.

This bird, which hitherto has been considered the same throughout the wide range of North and South America, may, I think, be separated on as good grounds as many of the owls which are generally admitted to be distinct. It is unnecessary to repeat here the excellent descriptions which have been given by Bonaparte and Audubon of N. American specimens of the burrowing owl I shall merely state wherein I think ours differs from the S. American species

I conceive it to differ in the general colour, being lighter in our species. with the markings and quills usually of a pale yellowish or cinnamon hue while in the other the colour is always much deeper and approaching dusky.

The most marked difference exists in the feet and legs, which are in ours slender and delicate, while in the other they are longer and much stouter.

The wings are shorter, and have the first and fifth quills equal, if anything, the first longest: in the S. American the fifth quill is considerably longer than the first.

The bill in ours is smaller in every way, and of a dusky horn colour, except at the ridge and edges; in the other it appears to be dusky only at the base.

But how can either of these agree with the description given of the Coquimbo owl, by Brisson, as being so much larger, with the tail of a dirty-white colour and immaculate?

I have seen this bird in New and Old Mexico, on the Rocky mountains, and in California; in each place presenting little difference in its habits. It always lives in burrows in the ground, either solitary, as I have frequently seen it, or in small companies. If it can avail itself of the labours of other animals, it will always do so, so that it is a constant interloper in the habitations of the prairie dogs, and in California in those of the large ground squirrel, which is there so very common. It however often digs for itself, and lives in scattered companies of four or five.

Nuttall is, I think, mistaken with regard to its migrating from California in August. I have seen it there at all periods of the year.

On the prairies its note is said to resemble that of Marmots, with which it is associated. The account which Vieillot gives of its nocturnal habits and note, has been doubted by Bonaparte and my friend Nuttall. During the breeding season, while sleeping near their burrows, I have been awakened by its low, measured and solemn cry, uttered much in the manner of its congeners, but peculiarly solemn.

Nyctale Acadica, Gmel. Little Night Owl.

I procured but one specimen of this species at Monterey in October.

Strix pratnicola, Bonap. Barn Owl.

This delicate feathered and familiar fowl, which, hitherto, I believe has not been known to exist west of the Atlantic coast, I found very abundantly in California, and presenting all the habits ascribed to its European relative. Its favorite resort is in the neighborhood of the towns and ruined Missions, although it may be found also about farm houses, and occasionally in the prairie valleys, which furnish it with abundance of mice and other small animals for

subsistence. It makes its nest under the tiled roofs of the houses of the towns, numbers under one roof, and shows but little fear when approached. I have scarcely ever visited a mission without disturbing some of these birds, which were roosting about the altar, chandelier, &c., of the chapel, and hearing the bendition of the Padre for drinking all the oil out of the lamps. Every where in California, when speaking of it, we are sure to be told of its propensity for drinking the sacred oil; with what truth I cannot say.

The specimens which I have examined agree in every respect with those from this side of the continent, and present the constant characters given by Audubon to distinguish it from the European species.

(*To be continued.*)

The following gentlemen were elected Correspondents of the Academy.

William M. Baird, of Reading, Pa.

William Gourlie, Jr., Esq., of Glasgow, Scotland.

Nicolai Aall, of Christiana, Sweden,

And Mr. Lewis Germain, of Burlington, N. J., was elected a Member of the same.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. MAY AND JUNE, 1846. No. 3.

Stated Meeting, May 12, 1846.

Mr. PHILLIPS in the Chair.

DONATIONS TO LIBRARY.

A History of British fossil mammalia and birds. By Richard Owen, F. R. S. Part xi. London: Dec., 1845. From Dr. Thomas B. Wilson.

Bulletin of the Historical Society of Pennsylvania. Vol. 1, No. 5. From the Society.

Proceedings of the Providence Franklin Society. Vol. 1, No. 1. From the Society.

A Geological map of England and Wales. From Roderick Impey Murchison, Esq., of London, through Professor Silliman.

Annual Report of the Leeds Philosophical Society for 1844 and '45. From the Society.

Dr. Hallowell read a paper, entitled 'Some account of the Anatomy of the Harpyia destructor, or Harpy Eagle of S. America.' Referred to a committee consisting of Drs. Morton, Bridges and Leidy.

Dr. Hallowell also read a description of a new species of bat from Western Africa, which was referred to Mr. Cassin, Drs. Leidy and Zantzinger.

Dr. Leidy read a paper entitled "Remarks on the Anatomy of the abdominal viscera of the Sloth, Bradypus tridactylus, L.," accompanied with two drawings representing the uterus containing an embryo, and the embryo with its membranes. Referred to Drs. Morton, Hallowell and Goddard.

Stated Meeting, May 19, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimen, in spirits, of Pteropus Haldemani, Hallowell, a new species of bat from Western Africa, described by Dr. Hallowell in a paper read at last meeting. Presented by Dr. Hallowell.

Jaw of a Shark, taken off Cape Island, N. J.; also the beak or muzzle of Squalus pristis, Linn., (common Saw-fish,) from the same locality. Presented by Dr. C. W. Pennock.

DONATIONS TO LIBRARY.

Proceedings of the Boston Society of Natural History, Jan., 1846. From the Society.

A Synopsis of the Fishes of North America. By David Humphreys Storer, M. D. 4to. Cambridge: 1846. From the Author.

American Journal of Arts and Sciences. Vol. 1, No. 3. New series. From the Editors.

American Quarterly Journal of Agriculture and Science, conducted Drs. Emmons and Prime. Vol. 3, No. 2. From the Editors.

Prof. Johnson offered some observations on the subject of floating docks, illustrating, by means of models and drawings, the principles of construction, and their application to practical purposes.

Meeting for Business, May 26, 1846.

Vice President Morton in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Committee to whom was referred the following, reported in favor of publication.

Descriptions of Two New Species of Fossil Echinodermata, from the Eocene of the United States.

By Samuel George Morton, M. D.

Genus Cidaris.

C. Alabamensis. Compressed, pentagonal, the angles rounded so as to form a ten-sided figure. Ten rows of tubercles, with nine or ten in each row. Ambulacra arranged in five pairs, with delicate, slightly oblique fissures separated by a double elevated line. Surface between the tubercles and ambulacra finely granulated.

Genus Galerites.

G.? Agassii. Elevated, hemispherical, with four pairs of ambulacra which diverge from the apex and meet at the margin, having each two rows of pores connected by transverse fissures. Surface marked by numerous, distinct granulations, which are continued over the whole base of the fossil.

I have much pleasure in dedicating this remarkable species to M. Louis Agassiz, whose profound researches into this class of organized beings have thrown much new light on their structure, affinities and geological relations.

Both these fossils were found by Dr. Albert Koch, in the Eocene strata of Washington Co., Alabama, and by him politely submitted to me for description.

The Committee to whom was referred a description of a new bat from Western Africa, by Dr. Hallowell, reported in favor of publication.

Description of a New Species of Bat from Western Africa.

By Edward Halowell, M. D.

Pteropus *Haldemani.*

Description.—General expression ferocious; head resembling that of a dog; ears of moderate size, smooth for the most part, obtuse at the tip, hairy at base externally; there is no tragus; body dark brown above; neck, occiput and vertex same color, but lighter than upon the back; wings and interfemoral membrane of a sienna brown color above and below; thorax and upper part of abdomen and sides brown; the rest of the abdomen is white; there are two long and thin hairs upon the muzzle; lips full, nostrils prominent, their margins being surrounded by a fold of the skin; eyes rather large, irides ——; wings long; that portion of the membrane included between the phalanges naked, the remainder more or less hairy above and below; upper surface of the interfemoral membrane hairy, with the exception of a small part at its posterior extremity which is naked; under surface also hairy, but much less so than upper; no tail; tibia and fibula included within the membranes; four slender toes, compressed, of nearly equal length, the outer one being a little shorter than the others; they are sparsely furnished with thin hairs, varying in length; the terminal phalanx of each is provided with a robust, sharp and incurvated nail. The index finger like the thumb is also furnished with a short and incurvated nail.

Measurements.	*Inches.*
Total length,	$3\frac{1}{2}$
Length of head,	$1\frac{3}{4}$
Distance between anterior margin of nostril and anterior canthus of eye,	$\frac{5}{8}\ \frac{1}{10}$
Distance between angle of mouth and anterior canthus of eye,	$\frac{3}{8}$
Length of neck, body and tail,	3
Length of forearm,	3
Length of tibia,	$1\frac{1}{4}$
Spread,	$14\frac{1}{4}$
Length of thumb,	$\frac{3}{4}$

Dental Formula.

Incisors.	*Canines.*	*False Molars.*	*Molars*
2——2	1——1	1——1	2——2
2——2	1——1	2——2	3——3

This species I have named after my esteemed friend, S. S. Haldeman, Esq., author of the N. American Limniades, who obtained it with other African animals from Dr. Goheen, Physician to the American Colonization Society.

Descriptions of New Species of Coleoptera of the United States.

By F. E. Melsheimer, M. D.

(Continued from Vol. 2. page 318.)

Cantharidæ, Leach.

Cantharis, Geoffr.

Lytta atrata. Body black, immaculate, Fabr. Syst. El. ii. 70.

Var. ? a. Black, with the head obscurely rufous. 3–4 l. long. *Lytta convolvuli*, Melsh. MS.

It is much smaller than the *atrata*, and differs from that species, aside of other characters, in being more obviously ashy-pubescent on the lateral margins of the elytra.

Both occur on the flowers of bind weed, (*Convolvulus sepium*, L.)

C. *nigricornis.* Blackish, clothed with a dense yellowish-ashy pubescence. 3 l. long. Alabama.

Blackish or dark brownish, densely yellowish pubescent; head with the medial impressed line distinct; antennæ longer than the thorax, slightly thickened in the middle, with the second joint a little smaller than the fifth; black, glabrous; eyes blackish; labrum and palpi black; thorax with the sides almost parallel, with the dorsal line distinct; beneath and feet as above.

Zonitis, Fabr.

Z. lineata. Testaceous-yellow; elytra pale testaceous, with a broad vitta and tibiæ dusky. 4 l. long; $1\frac{1}{3}$ l. wide. Pennsylvania.

Crioceris lineata, Melsh. Catal.

Testaceous-yellow; head deeply and densely punctured, with the vertex impunctured, shining; mandibles with the apical half piceous-black; palpi dull testaceous; antennæ ——: two basal joints brownish; thorax transverse, rounded, glossy, with a few scattered punctures; medial line feebly impressed: scutellum color of the thorax, densely punctulate, with the tip impunctured; elytra testaceous, rugulose, somewhat distantly punctulate; each with a broad, longitudinal reddish-brown band in the middle, which attains neither the base nor the apex; two or three narrow, obsolete, raised lines: beneath, femora, and tarsi color of the thorax and head; tibiæ and knees dusky; tarsi simple; claws, besides being cleft, are distinctly pectinate, and each claw furnished with a long hair from near the base.

2. Z. *mandibularis.* *Crioceris mandibularis*, Melsh. MS. Form and size of the preceding.

Color of the head, palpi, mandibles, body beneath, femora and tarsi, as in the preceding; eyes as in the prèceding, black; head and thorax punctured as in the preceding; the latter each side of the middle with a short, longitudinal profound impression; scutel as in the preceding; elytra uniform, very pale testaceous, less rugulose, and more closely and distinctly punctured than in the preceding, otherwise as in the preceding; tibiæ darker than the femora, and each, as in the preceding, with two spines at tip; claws as in the preceding.

NEMOGNATHA, Illig.

N. *bimaculata*. Black; thorax yellow, with two blackish spots. 3 l. long. Pennsylvania.

Black, densely black hirsute: head profoundly and densely punctured; antennæ black, filiform, with the second joint smallest, the following subequal, first and second joint rather hirsute; eyes black; a triangular dull rufous spot between the antennæ; mandibles testaceous, with the tips and labrum piceous: thorax yellowish, much and finely punctured, narrower than the head, narrower at base than before the middle; angles rounded; basal edge straight; sides straight from the base to the anterior curve; each side of the middle before the base, with a roundish oval brownish spot: elytra finely shagreened, with two longitudinal, oblique, raised lines before the middle, very obscurely defined; wings fuliginous: beneath as above; posterior and intermediate feet blackish: anterior ones brownish.

Œdemeridæ, Leach.

ISCHNOMERA, Steph.

I. *unicolor*. Black; elytra with three faint longitudinal raised lines. 3 l. long. Pennsylvania.

Necydalis unicolor, Melsh. MS.

Black, opake: head very minutely punctured and wrinkled, with the front dull cyaneous; tip of the clypeus testaceous; labrum black; antennæ fuscous, with two basal joints and palpi dull testaceous: thorax punctured like the head, each side before the middle somewhat depressed; sides behind the anterior margin abruptly deflexed, and there on the lateral margins a fine, short, transverse raised line; medial space somewhat flattened, with an obsolete raised dorsal line; elytra finely shagreened, with three fine, rather obsolete lines, beneath black-cyaneous: feet blackish-brown, tibiæ and tarsi paler, all with a bluish reflexion.

NACERDA, Stev.

1. N. *lateralis*. Rufo-testaceous, eyes, lateral margins of the thorax and elytra, and abdomen, blackish. 4 l. long; 1 l. wide. Pennsylvania.

Rufo-testaceous, finely ashy-pubescent, finely shagreened: antennæ ——; labrum long, indented at tip; palpi testaceous; eyes large, round, deep black: thorax rather oblong, narrowed posteriorly; faintly impressed in front of the scutel, and even less so each side of the middle behind the anterior margin; sides each with a black spot, much dilated at the anterior margin, and acute towards the hind angles, which it does not attain: elytra paler than the thorax and head, with the sides parallel; a broad blackish vitta, which does not cover the lateral edge and tip; general color of the entire sutural space not as broad as one of the vittæ: abdomen brownish: pectus and feet testaceous-yellow.

2. N. *dorsalis*. Pale testaceous, with a spot on the vertex, a dorsal band, and two elytral vittæ, fuscous. $4\frac{1}{3}$—$5\frac{2}{3}$ l. long;—$1\frac{1}{4}$ l. wide. Carolina?

Pale testaceous, clothed with a very fine ashy down, very minutely shagreened: head with a brownish band in the face (♀), or only obvious on the vertex (♂); antennæ and palpi testaceous, the former with the two terminal joints equal, both together about as long as the tenth (♂): eyes large, deep black, emarginate at the base of the antennæ; thorax, as is common, widest before, with the sides slightly sinuate or retuse in the middle; each side of the middle with two roundish impressions, placed quadrangularly, obvious in the ♂, less so in the ♀; a brownish entire dorsal band; sides in the middle obsoletely brown: elytra slightly narrowed behind, each with two longitudinal brownish bands, confluent before the apex: beneath and feet color of above, or in a ♀ specimen with the three terminal segments brownish.

XYLOPHILUS, Latr.

X. *fasciatus*. Black; antennæ, palpi, feet, and base and apex of the elytra, testaceous. 1 l. long. Pennsylvania.

Black, ashy-pubescent: head minutely punctured, with the mouth dull testaceous; antennæ and palpi testaceous; the former as long as the thorax, slightly thickened towards the apex, with the second and third joints subequal in length, the second rather more robust than the third: maxillary palpi with the terminal joint large, securiform: thorax not wider than the head, suborbiculate, with the sides parallel; more coarsely punctured than the head; medial line obsolete: scutellum black, coarsely punctured: elytra wider than the thorax, punctured, punctures large, profound, vicinal, testaceous-yellow, with a common, broad, blue-black fascia in the middle; scutellar region dusky: feet testaceous: abdomen piceous: pectus black, rough with large punctures: posterior femora rather clavate.

Melandryidæ, Leach.

MELANDRYA, Fabr.

"Black; thorax with grooves; front with an impressed dot; elytra striate and punctured." *Melandrya striata*, Say, Narrative of an Exped. App. p. 286.

Var. a. Sculptured as in the preceding, dull rufous, with the eyes and elytra black; palpi and tarsi testaceous; tibiæ testaceous-yellow; body beneath and femora, like the thorax, dark dull rufous. *Serropalpus thoracicus*. Melsh. Catal.

Var. b. Sculptured as in the type, with the frontal impression slight, almost obsolete; black above, beneath and femora chestnut-brown; tibiæ, tarsi and palpi testaceous, the two former tinged with rufous. $4\frac{1}{2}$ l. long; $1\frac{1}{2}$ l. wide or only about half as large as the type, or preceding variety. It is *Serropalpus bicolor*, Melsh. Catal.

1. M.? *umbrina*. Fuscous, ashy-pubescent; antennæ and feet rufous. 5 l. long; $1\frac{1}{3}$ l. wide. Pennsylvania.

Serropalpus umbrinus, Melsh. Catal.

Elliptic, brown, densely ashy-pubescent, finely and densely punctured: head with the clypeus broad, obtusely rounded and glabrous at tip; labrum transverse, almost covered by the clypeus; each side between the antennæ with an

obtuse impression; antennæ longer than the thorax, filiform, rufous; first joint clavate, second one-third smaller than the third, which is slightly longer than the fourth; joints 5—10, subequal, terminal joint longest, rather fusiform; palpi brown, pilose, with the terminal joint robust, obliquely truncate at tip or slightly securiform; eyes black, transverse, slightly emarginate; thorax subtrapezoidal, as wide at base as the elytra, with the anterior edge truncate, and the posterior one slightly bisinuate; sides very feebly rounded; hind angles rather acute; each side of the middle at base with a small and profound impression; scutellum small, transverse-oval: elytra more than four times longer than the thorax; an obtuse sutural groove behind the middle; beneath darker; feet dull rufous; tibiæ armed with two moderate spurs at tip; tarsi long, very slender, simple, with the posterior pair 4-jointed, first joint longer than the following ones taken together.

Var. a. As the preceding, but much lighter tinted. *Serropalpus fuscus*, Melsh. Catal. This species, in consequence of having the palpi not serrated, cannot be placed in the genus Serropalpus, nor in that of Melandrya; perhaps it ought to be referred to the genus Scotodes, Esch., of which I have as yet seen no definition.

Hypulus, Payk.

H. *trifasciatus*. Rufous; head and three elytral bands black. 2½ l. long. Pennsylvania.

Pubescent, densely and finely shagreened: head black, densely granulate, sometimes with the cranial and frontal sutures very distinct; apex of the clypeus, and mouth rufous; antennæ rufous, robust, very slightly longer than the thorax; palpi prominent, rufous, with the terminal joint compressed: thorax rather quadrate, slightly widest before the middle, with the anterior edge truncate, and bisinuate at the posterior one; a profound fovea each side of the middle at base; rufous, sometimes with the middle of the anterior margin dusky; elytra rufous, with three common, black fasciæ; the first is on the base, broadest on the scutellar region, where it sends off a branch towards the middle fascia, which it nearly reaches; middle or second fascia, is placed beyond the middle, the third or posterior one is immediately before the apex which it almost covers: feet and beneath more decidedly rufous than the elytra.

Scraptia, Latr.

S. *pallipes*. Dark fuscous, feet testaceous: 1 l. long. Pennsylvania.

Dark brown above, minutely punctured, and shagreened: head black, minutely and deeply punctured, with two longitudinal impressions; mouth dusky; palpi testaceous; antennæ long, filiform, fuscous; thorax short, transverse, truncate in front and behind, with the sides rounded; a large and obtuse impression each side at base; medial line obsolete: elytra widest behind the middle; beneath pale brown: feet pale testaceous.

Var. a. Chestnut brown; head and thorax darker; frontal impressions obsolete; lateral thoracic impressions small, an obvious one in front of the scutellum. *Hallomenus minutus*, Melsh. Catal.

Var. b. Size and form of the type; head black, with the frontal impressions as in Var. a: antennæ as in the type; thorax impressed as in Var. a, dull tes-

taceous; elytra dull testaceous, indeterminately black at apex and lateral margins; beneath dusky; feet as in the type. *Hallomenus plagiatus*, Melsh. MS.

HALLOMENUS, Payk.

1. H. *scapularis*. Fuscous; antennæ, feet and humeri testaceous. 1½ l. long. Pennsylvania.

Hallomenus humeralis, Melsh. Catal.

Oblong-ovate, dark dull reddish-brown, pubescent, finely and densely wrinkled; head finely and confertly punctured, with the eyes deep black, lunate; antennæ, palpi and feet testaceous; mouth piceous: thorax each side of the middle at base with a small fovea: elytra with the anterior exterior angles rufo-testaceous: pectus as above: abdomen palish brown.

2. H.? *quadripustulata*. Blackish: elytra with four testaceous spots. 1½ l. long. Pennsylvania.

Elliptic, blackish, pubescent, densely and obviously shagreened or wrinkled, somewhat glossy: head punctulate; eyes transverse, black; antennæ short; testaceous, with the apical half black and arcuated; second and third joints subequal, palpi testaceous, terminal joint of maxillary large; thorax tranverse, widest in the middle, rounded at the sides, with the edges margined; basal edge subtruncate, with the hind angles acute; anterior edge truncate, with the anterior angles deflexed; an obsolete impression each side towards the hind angles; scutel, small, black: elytra with a large testaceous spot at base, and a rather transverse-oval similarly colored one midway the apex and middle: feet pale brown, or testaceous, the femora sometimes piceous. The antennæ, which are somewhat thickened towards the apex, and the thorax in its outlines, differ greatly from those of the preceding species, which is a true Hallomenus. It might perhaps be placed more correctly in the genus *Xilita*.

ORCHESIA, Latr.

1. O. *sericea*. Testaceous; eyes black. 2 l. long. Pennsylvania.

Rufo-testaceous, yellowish sericeo-pubescent, densely and finely rugose-punctured: beneath rather glabrous, and deeper colored. Perhaps identical with *micans*, Illig., or only a local variety of that species.

2. O. *castanea*. Fuscous; antennæ, palpi and feet rufous. 2½ l. long; ⅔ l. wide. Pennsylvania.

Hallomenus castaneus, Melsh. Catal.

Slender, brown, yellowish-sericeous, densely shagreened: head, dull, dark rufous, with the labrum, palpi, feet and antennæ, rufous; eyes black: thorax with the two basal foveæ distinct: abdomen color of the feet: pectus darker, in a certain light blackish.

3. O. *gracilis*. Fuscous; eyes plumbeous. 2 l. long; ½ l. wide. Pennsylvania.

Hallomenus gracilis, Melsh. Catal.

Slender, brown, pubescent, densely and finely shagreened: head as in the preceding; eyes lead color; antennæ, palpi, feet and beneath, as in the preceding species: thorax, with the basal foveæ somewhat obsolete. Closely allied to the preceding species, but it is always smaller, comparatively more slender, and with a coarser vesture.

EUSTROPHUS, Illig.

1. E. 4-*maculatus*. Dull rufous; elytra black, with four fulvous spots. 2½ l. long; 1¼ l. wide. Pennsylvania.

Dull rufous or chestnut red, finely pubescent, finely rugose-punctured: head color of the thorax; antennæ and palpi rufous, the former with the last joint of the clava paler; eyes black: thorax each side of the middle at base with a short, acutely impressed line; scutellum transverse, rounded at tip, punctulate: elytra black, with very faint traces of longitudinal obtuse, raised lines; each with two large fulvous spots, of which the first is posted on the humeral angle, and extends obliquely to the subsutural margin, where it is narrower than at its origin; second or posterior spot is a little before the apex, and is transverse, and reaches nearly to the suture: abdomen paler than the thorax; feet and pectus, densely sericeous.

2. E. *niger*. Black above; beneath reddish brown; elytra punctate-striate. 2¼ l. long; 1¼ l. wide. Pennsylvania.

Mycetophagus niger, Melsh. Catal.

Black, very minutely and densely punctured, ashy-pubescent; mouth piceous; antennæ, palpi and feet rufous; thorax each side of the middle at base with an obsolete obtuse impression: scutellum as in the preceding: elytra punctate-striate, striæ very fine, punctures approximate: beneath dusky reddish-brown.

This species differs from *bicolor*, Fabr., which it resembles by its striate elytra, in the outline of the body; that of *bicolor* is like *quadrimaculatus*, nob., obovate, and that of *niger* is rather elliptic.

Cistelidæ, Leach.

ERYX, Steph.

"Sanguineous; head, elytra and feet black." *Cistela amœna*, Say, Journ. Acad. Nat. Sci. iii. 268.

Var. a. As the preceding, with the suture and lateral edges of the elytra rufous.

ALLECULA, Fabr.

A. *pilosa*. Fuscous; antennæ, palpi and tarsi testaceous. 4 l. long; 1½ l. wide. Pennsylvania.

Cistela pilosa, Melsh. Catal.

Oblong elliptic, dark brown above, ashy-pubescent; head strongly and densely punctured, with the frontal suture distinct; clypeus obtusely rounded, and piceous at tip; labrum, antennæ and palpi testaceous; the former rather piceous; the latter with the last joint of the maxillary distinctly securiform; thorax transverse, as wide at base as the elytra, where it is wider than at apex, with the sides rounded; basal edge rather straight; anterior edge together with the anterior angles obtusely rounded; regularly and deeply punctuate; each side of the middle towards the hind angles with an obsolete shallow transverse impression; medial line fine, impunctured; a small obtuse triangular impression in front of the scutel, which is transverse, with a few transverse series of

punctures: elytra elongate, with sides almost parallel; punctate-striate, the striæ and punctures very fine; interstices convex, punctulate and rugulose: beneath and feet dark chestnut-red, glossy; tarsi testaceous. May be placed in the new genus *Cteniopus*, Solier.

MYCETOCHARUS, Latr.

1. M. *niger*. Black above; feet rufous. 2¼ l. long. Pennsylvania.

Cistela nigra, Melsh. Catal.

Black above, slightly pubescent, rather glossy: head densely punctulate; palpi ——: antennæ reddish brown, with two basal joints paler: thorax punctured, punctures not dense, rather shallow: elytra punctate-striate, with the striæ obtuse and the punctures minute, the interstices transversely rugose: beneath chestnut-red; feet rufous.

2. M. *ruficornis*. Fuscous; antennæ, palpi, feet and base of the elytra testaceous. 2 l. long. Pennsylvania.

Cistela axillaris, Melsh. Catal.

Brown, pubescent, densely punctulate; antennæ, labrum, palpi and feet testaceous; thorax at base each side of middle with a small and profound impression; dorsal impression obsolete: scutel brown: elytra densely rugulose; towards the suture with faint traces of the interstices; base broadly and indeterminately testaceous: beneath pale brown: femora rather pale testaceous. This species is distinct from the *fraterna*, Say, which is not, as Say states, the *axillaris* of M. Catal.

CISTELA, Fabr.

1. C. *fuliginosa*. Dark fuscous; antennæ and tarsi dull rufous. 5–6 l. long; 1⅔–2¼ l. wide. Pennsylvania.

Cistela fuliginosa, Melsh. Catal.

Dark brown or blackish, finely ashy-pubescent; head densely punctulate, with the frontal suture distinct; clypeus and labrum dull rufo-piceous; palpi dark piceous; antennæ dull dark rufous, long, slender in the ♀ very slightly serrate; thorax with the outlines as is common; very finely rugose-punctured, punctures confluent; basal margin each side of the middle with a slide impression; transversely and obsoletely indented in front of the scutellum; sides before the hind angles slightly indented; ♀ with numerous small, obsolete impressions on the disk, and a large one each side behind the anterior angles: scutellum finely and densely punctured; elytra punctate-striate, striæ profound, with the punctures minute, the insterstices convex, wrinkled, and numerously and minutely punctured: beneath somewhat piceous; tarsi color of the antennæ.

C. *punctulata*. Black, strongly punctured; palpi and tarsi rufous. 4½ l. long; 2 l. wide. Pennsylvania.

Cistela picipes, Melsh. Catal.

Black, clothed with a fine but not dense ashy-pubescence; head with large, profound and rather distant punctures; frontal suture very distinct and profound; clypeus at tip, and labrum dull rufo-piceous; palpi yellowish-rufous; antennæ long, slender, dull reddish-brown: thorax punctured as the head, with the punctures rather larger, deeper, and less vicinal; the ordinary

basal impressions obsolete; scutellum with a longitudinal impunctured space in the middle: elytra strongly punctate-striate, the interstices rugose, and with distant punctures: pectus punctured and colored as the thorax; abdomen ——: femora dull chestnut-red; tarsi color of the palpi; tibiæ darker. Distinct from the *picipes*, Fabr.

3. C. *fuscipes*. Fuscous; three basal joints of the antennæ and feet testaceous, $4\frac{1}{4}$ l. long; $1\frac{1}{2}$ l. wide; ♂; $5\frac{1}{4}$ l. long; $1\frac{5}{8}$ l. wide. Pennsylvania.

Cistela fuscipes, Melsh. Catal.

Brown, clothed with a fine, dense, ashy-pubescence: head very minutely and confluently punctured, with the front somewhat indented; a longitudinal impressed line, extending from the vertex to the apex of the clypeus, very distinct in the ♀; frontal suture obsolete; clypeus at tip, labrum and palpi, dull testaceous: thorax punctured, punctures intensely minute and crowded; basal impressions obscure; anterior edge dull rufous; posterior angles prominent and acute, particularly in the ♀: scutel punctured as the thorax: elytra punctate-striate, with the striæ profound and the punctures transverse and close set, the interstices punctured as the thorax, and in the ♂ rather alternately wide: beneath as above: feet pale yellowish-testaceous, the tibiæ and tarsi rather deeper. The specific name is somewhat inappropriate.

C. *brevis*. Black; antennæ, palpi and feet rufous. Say, Journ. Acad. Nat. Sc. iii. 269. It may be added to the above character that the antennæ are serrate, mostly fuscous, with three basal joints testaceous.

C. *sericea*. Pale testaceous, immaculate; elytra absolutely striated near the suture. Length about one-fifth of an inch. Say, Journ. Acad. Nat. Sc. iii. 270. Long's Expedit. App. p. 285.

Var. ? a. Fuscous, antennæ, palpi, tibiæ, tarsi and suture of the elytra, rufous; the striæ of the latter almost entirely effaced. Length somewhat less than the preceding. *Cistella pulla*, Melsh. MS.

Var. ? b. Dull rufous, with the head and throat above blackish: striæ of the elytra feebly defined. Length of var. a. Smaller, but altogether like *thoracica*, Fabr., variety of *murina*, Fabr.

4. C. *nigrans*. Black-brown; elytra punctate striate. $3\frac{1}{2}$ l. long; 1 l. wide. Pennsylvania.

Cistela atra, Say, Journ. Acad. Nat. Sc. v. 242.

Black-brown, ashy-pubescent; head deeply and not closely punctured; frontal suture distinct; eyes closely approximating above; antennæ fuscous; palpi piceous; thorax subquadrate, slightly widest in the middle, with the sides obtusely rounded, truncate in front, slightly waved behind; punctured, punctures profound, numerous, but not crowded; an obtuse impression in front of the scutellum: elytra deeply punctate-striate, the interstices convex, rugose; beneath and feet piceous. The specific name *atra* has been applied by Fabricius to a different species.

Var. a. As in the preceding, with the antennæ, palpi and feet testaceous; sometimes the antennæ, tibiæ and tarsi, dull rufous. 4 l. long. Alabama.

Helopidæ, Steph.

Helops, Fabr.

H. *tumidus*. Black-brassy; elytra gibbose. $6\frac{1}{4}$ l. long; $3\frac{1}{2}$ l. wide. Pennsylvania.

Helops ovatus, Melsh. Catal.

Ovate, convex, brassy-black, glossy; head densely rugose-punctured, transversely obtusely indented between the antennæ, with the clypeus honey-yellow and impunctured at tip; labrum piceous at tip; antennæ half the length of the body, filiform, dull reddish-brown, with the basal joints piceous; first joint clavate, second short, obconic, third joint as long as the two following ones united, cylindric, fourth joint shorter than the fifth, the three penultimate joints obconic, slightly thicker than the preceding ones; palpi piceous: thorax subquadrate, somewhat wider than long, slightly wider behind than before, where it is not strongly emarginate; posterior edge truncate; angles subrectilinear, edges finely margined, convex, punctured as the head: scutellum obtuse-triangular, polished with sparse punctures: elytra at base not wider than the thorax, in the middle nearly twice as wide as at base, with the sides rounded; apex acuminate; above strongly convex, punctate-striate, with the striæ fine and slightly impressed, and the punctures small, oblong, and deeply impressed; interstices flat, distantly punctulate: beneath and feet pitchy-black; tarsi mostly, tibiæ sometimes, ferruginous; anterior femora clavate, with a small tooth towards the tip. This insect, on account of its very frequent occurrence, has been doubtless already described. I should not hesitate to consider the H. *cisteloides* of Germar identical with the present species, if that accurate entomologist had not stated that the thorax of *cisteloides* was "postice paullo angustior," which is not the case in our species, but in numerous specimens before me the thorax is in every instance postice paullo latior.

Diaperidæ, Westeo.

Trachyscelis, Latr.

T. *flavipes*. Black; feet testaceous. $1\frac{2}{3}$ l. long. Virginia.

Ovate, black, glossy: head impunctured, transversely sulcate between the antennæ; labrum, mouth, palpi and antennæ, rufo-testaceous, the clava of the last pale testaceous; a small, round indentation on the vertex; thorax short, transverse, moderately convex, impunctured, shining, slightly emarginate in front, behind obtusely rounded, with the sides strongly rounded; angles rounded; scutellum obtuse-triangular, piceous: elytra as wide at base as the base of the thorax, widest in the middle, with the sides rounded; above moderately convex, punctate striate, with the two or three sutural striæ wider and deeper impressed than the lateral ones; interstices flat, impunctured; beneath and feet clothed with a long ashy pile, latter rufo-testaceous.

Neomida, Ziegl.

1. N. *sanguinicollis*. Dull sanguineous; elytra black, punctate-striate; head mutic. $1\frac{2}{3}$ l. long. Pennsylvania.

Diaperis bicolor, Melsh. Catal.

Ovate, dull sanguineous: head minutely punctured, margined and obtusely rounded at apex; eyes black; antennæ color of the head, thickened towards the tip, with the fourth joint longer than the third, the second joint shorter than any of the other joints; terminal joint thickest, subglobose: thorax glossy, moderately convex, short, transverse, feebly notched in front, slightly bisinuate behind, where it is wider than at apex, and as wide as the base of the elytra; sides feebly rounded; above very minutely and distantly punctured; each side of the middle at base with an obsolete impression; hind angles subrectilinear: scutellum triangular, color of the thorax: elytra black, tinged with rufous, particularly at the sides, base and tip; punctate-striate, with the striæ fine and slightly impressed; interstices flat, polished, impunctured: beneath deeper colored than the thorax, coarsely punctured; feet rufo-testaceous. Sometimes the thorax is dusky sanguineous, and the elytra entirely black.

2. N. *rufa.* Dull rufous, shining; beneath and feet rufo-testaceous. 2¼ l. long; 1⅓ l. wide. Pennsylvania.

Short, ovate, dull rufous; glossy: head very minutely punctured, rounded at apex, an arcuated impressed line between the antennæ, and a small obtuse indentation on the vertex; antennæ rufo-piceous, slightly thickened towards the tip, with the third joint longest, and second shortest; terminal joint ovate; eyes black; terminal joint of the palpi triangular; thorax formed like in the preceding, shining, punctured as the head; each side of the middle at base with an obtuse impression: scutel triangular: elytra punctate-striate, striæ fine, punctures small, close set; interstices flat, almost impunctulate: feet and epipleuræ testaceous-yellow. Resembles much in the outlines of the body *Diaperis ruficornis*, but that species is black and opake, and is also somewhat differently sculptured.

PLATYDEMA, Laporte.

P. *picilabrum.* Black; antennæ, labrum, palpi and feet rufo-piceous. 1¾—2½ l. long; ¾—1 1-5th l. wide. Pennsylvania. Numerous.

Oblong, deep black, sometimes with a greenish reflection, shining; head confertly punctulate; mouth, palpi and basal joints of the antennæ rufo-piceous, the latter with the clava frequently testaceous yellow; transversely indented between the antennæ: thorax transverse, notched in front, bisinuate behind, where it is wider than before, with the sides feebly rounded; angles subobtuse; above densely punctulate; a profound impression each side of the middle at base: scutellum subtriangular, impunctured: elytra punctate-striate, the interstices flat, very minutely and obsoletely punctured: beneath black, somewhat piceous; two terminal abdominal segments impunctured: feet dark rufo-piceous.

Tenebrionidæ, Steph.

HYPOPHLŒUS, Fabr.

1. H. *nitidus.* Castaneous; feet rufous. 3 l. long; ⅔ l. wide. Pennsylvania.

Hypophlœus nitidus, Melsh. Catal.

Cylindric, dark chestnut-red, shining; head deeply punctulate, bitransversely impressed; antennæ color of the thorax, with the tip and mouth rufous: thorax

convex, oblong-quadrate, slightly narrowed posteriorly, with the sides almost rectilinear and finely margined; truncate before and behind; surface numerously yet not densely punctulate; posterior edge depressed; scutellum transverse, coarsely punctured: elytra cylindric, with the sides parallel; somewhat obsoletely punctulate, punctures placed in series: feet lighter than the body beneath.

2. H. *parallelus*. Ferruginous-red, shining; feet paler. 1½ l. long. Pennsylvania.

Parallel moderately convex, rusty-red, shining, very minutely punctured and wrinkled; head bi-transversely impressed, the anterior impression is profound, and between the antennæ and the eyes, the posterior one is slight and between the eyes, which are black; antennæ color of the head or slightly paler; thorax quadrate, truncate behind, slightly bisinuate in front, with the sides rectilinear and almost parallel; hind angles rounded, anterior ones prominent, acute; margined: scutellum transverse, elytra obscurely punctulate with the punctures ranged in regular and approximate series: feet rufo-testaceous.

3. H. *thoracicus*. Rufous; elytra black. 1¼ l. long. Pennsylvania.

Hypophlœus thoracicus, Melsh. Catal.

Rufous, shining: head obscurely rugose-punctulate, with a transverse impressed line between the antennæ; an obsolete impression between the eyes; mouth and antennæ, testaceous-yellow: thorax subquadrate, posteriorly slightly narrowed, with the sides almost rectilinear; anterior and posterior edges truncate, with the angles subobtuse; surface finely, profoundly and distantly punctured; a small shallow longitudinal impression on the middle of each of the lateral margins: scutellum, black, transverse: elytra hardly more than twice as long as the thorax, black, with the suture narrowly and obsoletely rufous; cylindric; very minutely and distantly punctured, punctures scarcely ranged in series, and at apex obsolete; abdomen dusky, tinged with rufous: feet and pectus rufous.

4. H.? *niger*. Black; feet castaneous; elytra punctate-striate. 4½–5 l. long; 1–1¼ l. wide. Pennsylvania.

Hypophlœus castaneus, Melsh. Catal.

Elongate, cylindric, rather deep black, glossy: head subtriangular, flattened and impressed in the middle, distinctly, deeply and distantly punctured; mandibles robust, prominent, and with a strong tooth at tip; eyes orbiculate, plane, antennæ piceous, hardly longer than the head, with the clava three jointed, compressed, serrate on one side, basal joint and palpi dark rufo-piceous, the latter filiform; thorax longer than wide, wider at apex than at base, with sides almost straight and finely margined; basal middle almost truncate, with the basal lateral third slightly obliquely truncate; apex slightly tri-emarginate; angles subacute; surface punctured as the head; scutellum large, sparsely punctured and rounded at apex: elytra remote from the thorax, as wide as the base of thorax, with the sides parallel to near the apex; deeply striate, with edges of the striæ crenate, the interstics rather convex, each with a row of minute, oblong, distant punctures: beneath blackish, or dark-chestnut; the femora chestnut-red; the tibiæ and tarsi blackish; the latter pentamerous; the former compressed, and dilated towards the tip, and spinous on the outer edge.

5. H.? *nigellus*. Dark reddish-brown; femora chestnut-red. 3 l. long; ½ l. wide. Pennsylvania.

Hypophlœus nigellus, Melsh. MS.

Form entirely of the preceding, blackish, strongly tinged with reddish-brown: head not longitudinally indented in the middle, formed and punctured as in the preceding: eyes, palpi and antennæ as in the preceding: outlines of the thorax as in the preceding, with the punctures much more dense: scutellum and elytra formed and sculptured as in the preceding; beneath and feet entirely as in the preceding.

6. H.? *teres*. Castaneous. 2 l. long; $\frac{1}{3}$ l. wide. Pennsylvania.

Hypophlœus teres, Melsh. MS.

Form of the two preceding species, chestnut-red: head formed as in the preceding, and similarly punctured, with an obsolete impressed line between the eyes, which are as in the preceding; mandibles formed as in the preceding, piceous; antennæ and palpi rufous: outlines of the thorax as in the preceding, the punctuation as in that of *niger*: elytra cylindric, slightly narrowed from the base towards the apex, not as wide at base as the apex of the thorax; sculptured as in the two preceding: beneath and feet dark rufo-piceous; form of the tibiæ and tarsi as in the preceding species. The three last described species cannot with any propriety remain in this genus; they are more fitly placed in the genus *Trogosita*.

Uloma, Megerle.

1. U. *impressa*. Castaneous; head and thorax profoundly impressed. 5 l. long; 2 l. wide. Pennsylvania.

Tenebrio impressus, Melsh. Catal.

Subparallel, chestnut-brown, glossy: head much and strongly punctured, flattened, with a profound lunate impression before, behind which is a narrow transverse indented line, joined to the former by a short medial indentation; antennæ dark rufo-piceous, clothed with yellowish pile; palpi testaceous: thorax transverse, plano-convex, widest in the middle, where it is wider than the base of the elytra, strongly emarginate in front, slightly waved behind, with the sides obtusely rounded, and finely margined; angles subobtuse; surface minutely and densely punctured, strongly and irregularly impressed on the middle of the anterior margin; a small obtuse indentation in front of scutel, and frequently an obsolete one on each hind angle; scutel rounded at apex; elytra moderately convex, with sides almost parallel and straight, very slightly widest in front of the apical curve; crenate-striate, the interstices impunctured; feet and beneath somewhat darker than above, with the femora lighter and clearer. Distinct from the *culinaris*, Fabr., but resembles *retusa*, Fabr., in size, convexity, and impression of the middle of the anterior thoracic margin; from which, however, it differs in other essential characters.

2. U. *picea*. Blackish-piceous above; feet castaneous; elytra narrowed at tip. $3\frac{1}{2}$ l. long; $1\frac{2}{3}$ l. wide. Pennsylvania.

Tenebrio piceus, Melsh. Catal.

Ovate, blackish, tinged with reddish-brown, piceous: head finely rugose-punctured; slightly convex and hardly transversely indented between the eyes and antennæ, anteriorly obtusely rounded; mouth and palpi testaceous-yellow; antennæ rather more slender than is common, pale brown, with two nasal joints and tip of the terminal one paler: thorax transversly subquadrate, slightly

emarginate in front, feebly bisinuate behind, with the sides slightly rounded; very slightly widest before the middle; above moderately convex, densely punctulate; an obtuse impression each side of the middle towards the base, and another obsolete one on each area of the hind angles; anterior edge rufo-piceous: scutellum rufo-piceous: elytra convex, widest in the middle, narrowed to the tip, which is acutely rounded; crenate-striate, the interstices flat and scarcely punctulate; the fourth and fifth striæ abbreviated and confluent near the apical third: beneath strongly punctured, dark reddish-brown-piceous; feet dark rufous, glossy. The antennæ sometimes testaceous.

IPHTHINUS, Dej.

I. *æreus*. Black-brassy above; beneath and feet simply deep black; femora strongly clavate. 7½ l. long; 2⅔ l. wide. Pennsylvania.

Tenebrio æreus, Melsh. Catal.

Black, with a greenish brassy tinge, shining: head opake, hardly convex, densely and finely punctured or granulate, obtusely rounded in front; mouth and palpi piceous; antennæ blackish-piceous? first joint short, clavate, second shorter, obconic, third longest, subcylindric, the three following ones decreasing in length, obconic, the four penultimate joints transverse, subglobular, terminal joint short ovate, dull ferruginous: thorax transverse quadrate, moderately convex, truncate before and bisinuate behind, where it is narrower than before the middle; sides slightly rounded to near the posterior contraction; posterior angles rectilinear, anterior ones obtusely rounded; distinctly margined; surface irregularly and sparsely punctured, strongly indented behind towards the hind angles; a small impression in front of the scutellum; medial line obsolete and punctulate; anterior edge slightly elevated in the middle: scutellum triangular, impunctured: elytra wider than the thorax, convex, rather more strongly so behind the middle, where it is also somewhat wider than before; shining, finely crenate-striate, the interstices broad, minutely and very obscurely punctured; the fourth, fifth and sixth spaces confluent near the apical third, leaving the two intermediate lines unconnected; tips widely and very obtusely sinuate, conjointly acutely rounded: beneath and feet deep black, glossy, with the femora strongly clavate towards their tips; anterior tibiæ simple, curved. This species may prove to be the *Helops americanus* of Pal. de Beauvois, Ins. p. 122, pl. 30, fig. 6. The antennæ of the present specimen, and the only one in my collection, are entirely coated with a gummy substance, in consequence of which its true color cannot be determined.

BLAPSTINUS, Dej.

1. B. *mæstus*. Black; feet slightly paler. 2 l. long; 1 l. wide. Pennsylvania.

Oblong-suboval, black: head strongly punctate, with a feeble arcuated impression between the antennæ; clypeus slightly emarginate at apex; antennæ blackish, with the second and fifth joints equal; third joint longest; joints of the clava transverse, with the apical one short-ovate; palpi piceous-black: thorax transverse, emarginate in front, bisinuate behind, rather wider at base than at apex, with the sides slightly rounded and finely margined; angles sub-

acute; surface profoundly and rather densely punctulate; each side of the middle with an obsolete basal impression: scutellum small, transverse, rounded at tip: elytra punctate-striate, the interstices flat, minutely and distantly punctured: beneath glossy; femora tinged with reddish-brown, piceous; tibiæ and tarsi paler, piceous.

2. B. *æneolus.* Black-brassy; feet as in the preceding. Pennsylvania.

Slightly shorter and narrower than the preceding, which it much resembles, but it differs from that species, apart of being somewhat shorter and distinctly narrower, and of its brassy color, in having the thorax shorter and more profoundly emarginate in front, and more strongly bisinuate behind; in the elytra being less profoundly punctate-striate, and the interstices more convex, and less, and more obscurely punctulate.

To be continued.

The Committee to whom was referred the following paper by Mr. Phillips, read 13th of January last, reported in favor of publication.

Description of a New Fresh-water Shell, and Observations on Glandina obtusa, Pfeif.

By John S. Phillips.

Physa princeps. Testa elongata conica, luteo vel griseo cornea, nitida, lineis albis interruptis longitudinalibus picta; anfractibus 5—6-subconvexis; suturis appressis distinctis; apice acuto; apertura elongata; plica columellari obsoleta.

Shell elongated, conic, yellow or grey horn color, highly polished, with white, somewhat interrupted lines of growth following the marks of growth; whorls 5—6, slightly convex; sutures appressed distinct; spire conic; apex acute; aperture elongated, regularly rounded below, acutely angular above, columellar fold obsolete.

Length $1\frac{14}{10}$, breadth $\frac{65}{100}$, length of aperture $\frac{95}{100}$ of an inch.

See plate I, fig. 11, in No. 1.

This beautiful Physa was brought from Yucatan, Central America, by my friend Mr. Norman, the enterprising traveller and author of "Rambles in Yucatan," &c.

Among other species brought by Mr. Norman from Yucatan, were some specimens of a Glandina, of which I have found no description that would at all apply, except that of G. obtusa, Pfeif., from Nicaragua, (Proceedings of the Lond. Zool. Soc., 1845.)

If this species from Yucatan be the G. obtusa, Dr. Pfeiffer has described a young shell, the dimensions of the Nicaragua shell being, length 9½ lines, diameter 5 lines; last whorl rather longer than spire of the Yucatan shell; d. 14 lines; diameter 5¼ lines; aperture 5⅛ lines. The character of the surface in G. obtusa is not noticed. The specimens from Yucatan are minutely striated longitudinally, the striæ the strongest near the sutures and becoming weaker towards the aperture; these striæ are crossed by very minute revolving lines, giving the shell under a good glass a slightly granular aspect. The G. obtusa is described as "ovata utrinque attenuata;" these adult shells have the two last whorls almost cylindrical.

See plate 1, fig. 33, in No. 1.

Should it prove to be distinct from the Nicaragua species, I would propose the name of

Glandina (Achatina) *cylindracea.* Testa sub-cylindracea, apice obtusa, solidula, pellucida, pallidissimè carnea, longitudinaliter tenuè striata, striis decussatis lineis exilissimis, anfractibus 7, vix convexiusculis; sutura crenulata, apertura mediocre, spira breviore; columella basi contorta, et subito truncata; peristomate simplici; marginibus callo tenuissimo vix junctis; dextro medio non dilatato.

Length 1 $\frac{17}{100}$ diameter $\frac{46}{100}$, length of aperture $\frac{35}{100}$.

Shell subcylindrical, apex obtuse, moderately thick, pellucid, very pale flesh color, finely striated longitudinally, the striæ crossed by very minute lines; whorls 7, slightly convex; suture crenulate; aperture moderate, shorter than the spire; columella curved at the base, and suddenly truncated; outer lip thin; not dilated in the middle; inner lip scarcely covered by a slight callus.

The Monthly Report of the Corresponding Secretary was read and adopted.

On motion of Prof. Johnson: Resolved, That a copy of Harlan's Med. and Phys. Researches be presented to the Essex Co. (Mass.) Nat. Hist. Society.

Stated Meeting, June 2, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Annales des Mines. 4me. Serie, Tome 7, Livs. 1, 2 and 3 de 1845, and Tome 8, Liv. 4 de 1845. In exchange.

Proceedings of the Historical Society of Pennsylvania. Vol. 1, No. 4. From the Society.

Proceedings of the Boston Society of Natural History. April, 1846. From the Society.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 2, No. 7. From the Association.

Fifty-ninth Annual Report of the Regents of the University of the State of New York. Albany, 1846. From the Regents.

Dr. Elwyn presented a large number of works, chiefly on subjects of Natural Science, originally forming part of the collection of the late Dr. James Mease.

A letter was read from Wm. M. Baird, Esq., dated Reading, June 1st, 1846, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Leidy read a paper intended for publication, entitled "Anatomy of Spectrum femoratum, Say," with numerous drawings, representing the different parts and organs of the insect. Referred to Mr. Haldeman, Drs. Hallowell and Goddard.

Dr. Morton presented a letter from M. Lamarepicquot, a French naturalist, who has established his residence on the Upper Mississippi, with the view of investigating the habits, &c., of the Mammiferæ of that region. The letter was addressed to F. Markoe, Jr., Esq., Corresponding Secretary of the National Institute, and by him referred to the Academy through Dr. Morton, with a request to examine into the state-

ments which it contained. These were in reference to a discovery made by the writer and supposed by him to be new, of three distinct excretory passages, a urethral, a vaginal, and an anal, in the female *Gopher*, (Geomys bursarius?) A number of specimens had been examined, and this peculiar conformation found to be constant.

Stated Meeting, June 9, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A large collection of minerals, chiefly from New Hampshire, Presented by Dr. Elwyn.

Mr. Hodge, of Philadelphia, deposited in the Hall a perfect Egyptian mummy, enclosed in its original Sarcophagus, from Catacombs of Thebes.

Dr. Morton deposited two Indian crania from mounds in the vicinity of Chilicothe, Ohio, presented to him by Dr. Davis and Mr. Squier of that city; and two others from mounds in Buncombe Co., N. Carolina, from Dr. Hardy, of Ashville in that State.

DONATIONS TO LIBRARY.

Notice sur l'Eurypterus de Podolie, et le Chirotherium de Livonie, par G. Fischer de Waldheim. From Mrs. L. W. Say.

A portion of the Plates of Blainville's Malacology. From the same.

Carte Géognostique des districts de Mines de l'Etat de Mexico: par Frederick de Gerolt et Charles de Berghes: with a pamphlet explanatory of the same. From Baron Gerolt.

Dr. Elwyn presented an additional collection of works from the Library of the late Dr. James Mease, including 31 Nos. of the Bulletin de la Société Geographique: 7 Nos. of Til-

loch's London Philosophical Magazine and Journal, Transactions of the Literary and Historical Society of Quebec, Vol. 3, Part 2; First Supplement to the Philadelphia Med. and Phys. Journal, by Benj. Smith Barton, M. D., and a number of addresses, memoirs, lectures, &c., chiefly on subjects of Natural Science.

Dr. Morton made some remarks on the position of the ear in the ancient Egyptians.

Stated Meeting, June 23, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A collection of organic remains, reptilia, and fresh water shells. Presented by Dr. William Blanding.

A collection of Reptilia and fishes from Western Africa. Presented by Dr. Blanding and S. S. Haldeman.

Specimen, in skin, of Mustela ———, from East Tennessee. Presented by Mr. Haldeman.

DONATIONS TO LIBRARY.

Statisque de l'Espagne: par Alex. Moreau de Jonnès. Paris, 1834. Statisque de la Grand-Bretagne et de l'Irlande: par Alex. Moreau de Jonnès. 2 vols. Paris, 1837 and 1838. Recherches statisques sur l'esclavage Colonial et sur les moyens de le supprimer: par Alex. Moreau de Jonnès. Paris, 1842. From the Author.

Lexicon Physico-Medicum, or a new Medicinal Dictionary. Auctore J. Quincy. Taken from the British at the storming of Stoney Point, July 16th, 1779.) From Collinson Stevenson, M. D.

Geological Survey of Canada; Report of Progress for 1844. Montreal, 1846. From Richard C. Taylor, Esq.

A letter was read from H. Meigs, Esq., Secretary of the local committee of the Association of American Geologists and Naturalists, dated New York, June 5, 1846, transmitting a number of printed circulars of that Association for distribution among the members of the Academy.

A letter from M. Alex. Moreau de Jonnès was read, accompanying his works presented this evening.

Mr. Haldeman read a description of Unio abacoides, a new species, which being intended for publication, was referred to a committee consisting of Dr. Hallowell, Mr. Phillips and Mr. Conrad.

Mr. Fisher made some remarks on the comparative rapidity of growth of plants at different periods of their existence.

Dr. Leidy exhibited recent leaves of the common Elm, (Ulmus fulva,) each having on the upper surface several large pyriform excrescences, which were hollow and impervious, and contained multitudes of Aphides in different stages of development, from the larva to the perfect insect.

Dr. Morton made some observations on the occasional union or continuation of the spheno-temporal and coronal sutures in the human subject. He finds it frequent in the Negro, occasional in the Hindoo, Egyptian and aboriginal American, but has found no instances of it in the European. He proposes to continue his observations, and to present the precise results at a future meeting of the Society.

Dr. Morton also exhibited casts of some remarkable human effigies, and other relics taken from Indian mounds in the vicinity of Chilicothe, Ohio, by Dr. Davis and Mr. Squier, of that city.

Meeting for Business, June 30, 1846.

VICE PRESIDENT WETHERILL in the Chair.

The Committee on Dr. Leidy's paper on the Anatomy of Bradypus tridactylus, reported in favor of publication.

Remarks upon the Anatomy of the Abdominal Viscera of the Sloth, Bradypus tridactylus, Linn.

By JOSEPH LEIDY, M. D.

A living specimen of the three-toed sloth, which was lately brought to this city from South America, having died a short time since, I have been enabled, through the kindness of Mr. Wood, preparer of specimens in natural history, to procure the greater part of the abdominal viscera and the uterus.

Descriptions of the anatomy of this animal have been given by several authors, but unfortunately not without a great deal of discrepancy in the statement of the simplest matters of fact, which I cannot account for in any other way than by suspecting several species to have been indiscriminately described as the same. Such cases of discrepancy are by no means unfrequent in Zootomy, arising, no doubt, in many cases, from the too exclusive attention in the preparation and preservation of the exterior, to the careless examination, or even total neglect of the interior.

Regretting exceedingly that I have not been able to extend my observations to the whole anatomy of the animal, I must be content to give a few cursory remarks upon the material obtained, which I proceed to do at once.

The stomach, according to Cuvier, in his Regne Animal, Tome I. p. 217, "is divided into four sacks analogous enough to the four stomachs of the ruminantia, but without folds or other salient parts in the interior." Dr. Harlan,* in his account of the anatomy of this animal, writes, "the stomach consists of a large paunch, in no way furnished with compartments like that of the ruminantia, as is asserted by Buffon, who also errs in attributing ruminating faculties to the animal; but this organ presents a structure differing from that of any other animal with which we are familiar, being furnished with numerous, long, conical cul-de-sacs."

The specimen of the stomach which I have investigated agrees with the account, so far as it goes, of Cuvier. Taken as a whole, this organ is irregular in shape, large, capacious, and sacculated. It is evidently divided into four compartments, or distinct portions, by contractions, partitions, and difference of structure. The first compartment is the largest and corresponds to the paunch of the ruminantia; it is separated from the second compartment by a well marked and prominent ridge, is lined by a soft mucous membrane, having in it numerous follicles of a large size, is, comparatively with the other portions, thin in its parietes, and has projecting upwards from it, possessing the same structure, a "long, conical cul-de-sac," the only one found in connection with the stomach in this specimen. The second and third compartments are next in size, and are separated from each other by a partition of the same structure projecting from each side of the cavity of the organ. The œsophagus opens into the second compartment, but as it was cut off close to the stomach I am unable to say anything about it. The lining mucous membrane of these two latter compartments presents a rigid, rough and thick epithelia, surface resembling in

*Observations on the Anatomy of the Sloth, Bradypus tridactylus, Linn. Medical and Physical Researches, p. 344. Philadelphia, 1835

structure the cuticular lining of the gizzard of birds. A deep fold of the lining and intermediate or muscular membrane passes from the left of the opening of the œsophagus into the second compartment, transversely along the side of the third compartment into the fourth, being somewhat analogous to the arrangement in the ruminantia for conducting the ruminated food into the fourth stomach. The fourth compartment is narrow and intestiniform; the muscular tunic at its inferior half obtains a sudden increase, being extremely thick and strong. The internal surface at the commencement presents a patch of soft mucous membrane extending about two-thirds round the circumference of the cavity, and about an inch in width, and is surrounded by an abrupt, thickened, and papillated ridge of the epithelial structure, giving it somewhat the appearance of an excavated ulcer. The remaining part of the surface is formed of the same epithelial structure as in the second and third compartments, but is thicker, and is thrown into numerous transverse and longitudinal folds, and has at its commencement several large and deep follicles, with mouths from one to two lines in diameter. The pylorus is small, and presents no valvular arrangement, but is capable of being perfectly closed by the agency of the very thick muscular tunic and the approach of the internal longitudinal folds.

The duodenum comes off from the stomach by a very abrupt thinning in structure. Its lining mucous membrane is soft and villous, but has no valvulæ conniventes. The openings of the hepatic and pancreatic ducts into it are about one inch apart.

The other part of the small intestine is, comparatively, rather short, and appears to be pretty uniform in diameter, although it has a gradual increase downwards, being the reverse in this point in man and some other animals. The muscular coat of the small intestine is rather thin; the mucous coat presents a structure like that of the duodenum.

The distinction between the small intestine and colon is pretty well marked, but the latter does not extend beyond the former to a sufficient degree to form a cœcum. The commencement of the colon is about ten lines in diameter, but decreases as it passes forwards or ascends, until at its anterior part, the diameter is less than that of the small intestine; it gradually increases again as it descends, until it emerges in the extremely dilated rectum. It is not at all sacculated, which appears to have been otherwise the case in Dr. Harlan's specimen.

The liver is formed of large acini, is very little lobulated, and has no gall bladder.

The pancreas and spleen present nothing of interest.

The kidnies are small, and present internally but a single papilla renalis projecting into the pelvis of these organs.

The uterus in this individual is in a pregnant condition, being probably about four or six weeks advanced. Its size in this condition is a little more than one half that of the unimpregnated adult human uterus, and is pyriform in shape. The ovaries are about the size of a coffee-grain, and at one extremity are in contact with the uterus. The Fallopian tubes are correspondingly short. In structure the uterus is fibro-muscular; the cavity of the neck is lined by a mucous membrane thrown into numerous longitudinal folds. The cavity of the body contains a single embryo. The two portions of the membrana decidua, the reflexa and vera, are combined, forming a thickness of five

or six lines, and possesses a decided vascularity. The chorion is connected to the decidua by its shaggy surface, but an amnion is not distinguishable, being probably not yet formed.

Passing from the sides of the cavity of the chorion, is a delicate cellular tissue, filled with a transparent serous fluid, the corpus reticulare, in which the embryo is suspended by the duct of the allantois and vessels to the upper part of the chorion, at the point where the future placenta is formed. The embryo, in its curved position, measures six lines in length, and exhibits the cerebrum, cerebellum, chorda dorsalis, the rudimentary vertebræ, ribs, and extremities, and the heart, the liver, the stomach and urinary bladder.

Conceiving the pregnant uterus at this stage to be of more than ordinary interest, I present the following figures of the same as it appeared on dissection.

Fig. 1.

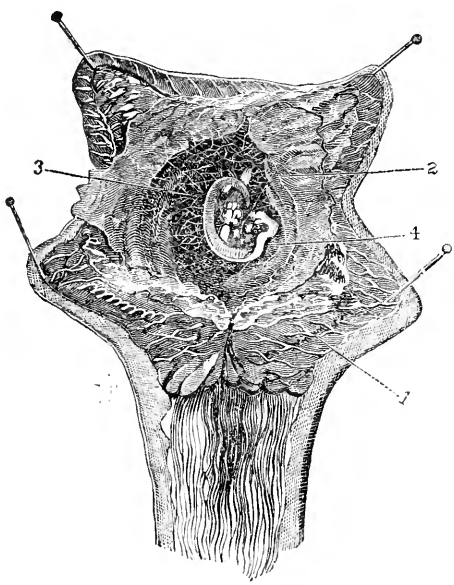


Fig. 1, Represents the uterus laid open, the size of nature, exhibiting: 1, The decidua; 2, The chorion; 3, The corpus reticulare; 4, The embryo.

Fig. 2.

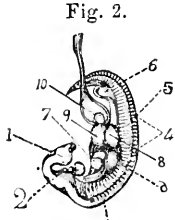


Fig. 2, Represents the embryo, twice the size of nature. 1, The cerebrum; 2, The cerebullum; 3, The chorda dorsalis; 4, The rudimentary vertebræ; 5, The ribs; 6, The extremities; 7. The heart; 8, The liver; 9, The stomach; 10, The urinary bladder.

The Committee on the following description of a new species of Unio, by Mr. Haldeman, read at last meeting, reported in favor of publication.

Description of Unio abacoides, a new species.

BY S. S. HALDEMAN.

Shell subovate, obtusely and regularly rounded posteriorly, disks approximate, chestnut brown and pale green, with green radiating interrupted capillary lines, and a tendency to form a submedial nodulous ridge: primary teeth robust, their inner margin nearly at right angles with the short lamellar teeth: pallial and muscular impressions well marked: nacre white, roseate posteriorly.

Length $2\frac{5}{8}$, height 2, diameter $1\frac{1}{8}$ inches.

Allied to U. dromas, *Lea*, and U. intermedius, *Conrad*, but is proportionally longer than either. In its outline and small transverse diameter it resembles U. abacus. I am indebted for this interesting shell to the liberality of Dr. Foreman, who received it from Eastern Tennessee.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Society then unanimously conferred a Life-Membership on Richard C. Taylor, Esq., of this city.

Dr. Morton offered the following:

Whereas, Dr. Thomas B. Wilson has purchased the magnificent collection of Birds called the *Rivoli collection*, now in Paris, embracing 10,000 specimens, mounted and named, and Dr. Wilson having expressed a wish that they should be arranged in the Hall of the Academy, and his fellow members warmly and cordially seconding his proposition, it is hereby

Resolved, That a committee of five members be appointed to devise such additions to the present building as may be necessary for this purpose, and to report a plan of the same to the Academy without delay.

The preamble and resolution were unanimously adopted, and the Committee appointed to consist of Dr. Morton, Mr. Vaux, Dr. Bridges, Mr. Pearsall and Dr. Wilson.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. 3. JULY AND AUG., 1846. No. 4.

Stateed Meeting, July 7, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The chairman announced that the extensive and valuable collection of Fossil organic remains, deposited in the Academy by Richard C. Taylor, Esq., had been purchased by Mr. J. Price Wetherill and Dr. Thomas B. Wilson, and is now presented by them to the Society.

A full notice of this collection will be found at page 261, Vol. 2, of the Proceedings.

Mr. J. Price Wetherill presented the entire collection of organic remains, hitherto, deposited by him in the Academy, and embracing two distinct series, as follows:

1. The *Steinhaur Collection*, which was made in England nearly forty years ago by the late Rev. Henry Steinhaur. It is particularly rich in fossil plants from the coal basin of Yorkshire, and in Testacea and Zoophytes from the lias, oolitic, and cretaceous formations of various parts of Great Britain.

2. The *Clifford Collection*, which was made by the late indefatigable Mr. Clifford of Cincinnati, and purchased from his

heirs by Mr. Wetherill. It contains an extensive and beautiful series of fossil remains of the Carboniferous deposits of the Valley of the Mississippi; together with the skeleton of the *Megalonyx laqueatus* of Dr. Harlan, and numerous bones and teeth of the Mastodon, Elephant, &c.

The whole number of specimens is nearly 3000; which, added to those previously in the Society's possession, and the beautiful collection of Mr. Taylor, now the property of the Academy, constitute an extensive and most instructive geological cabinet.

DONATIONS TO LIBRARY.

Some observations on the Ethnography and Archæology of the American Aborigines. By Samuel George Morton, M. D. New Haven, 1846. From the Author.

Abhandlungen der Mathem: Physikalischen classe der Kœniglich: bayerischen Akademie der Wissenschaften. 4to. Munchen, 1845. Bulletin der Kœnigl: Akademie der Wissenschaften, (from September 17, 1844, to January 7, 1846.) Almanack do. do. From the Academy.

Andentungen zur charaeteristie der organischen libens nach seinem auftreten in den verschiedenen erd periodeden. Festrede gelesen in der offertlichen sitzung der Kgl: bayer: Akad: der Wissensch: zu Munchen zer feier ihres sichsund achdzigsten stiftungages au 28 Marz, 1845. Von Dr. A. Wagner. From the Anthor.

American Journal of Science and Arts, second series, Vol. 1. No. 4. July, 1846. From the Editors.

Literary record and Journal of the Linnean Association of Pennsylvania College, Vol. 2. No. 9. From the Association.

A letter was read from William Gourlie, Jr., Esq., dated Glasgow, June 2, 1846, acknowledging the receipt of his notice of election as a correspondent.

A communication from Mr. Richard C. Taylor, dated July 3d, 1846, returning thanks to the Society for the Life-membership conferred on him at last meeting.

The Committee appointed at last meeting, to devise such additions to the present building as may be necessary for accommodating the splendid collection of mounted birds, recently purchased in Paris by Dr. T. B. Wilson, reported a plan, which was adopted; and on motion of Prof. Johnson it was

Resolved, That the Committee be continued, and that they be authorised and instructed to carry into effect said plan, as submitted by them this evening.

On motion of Dr. Morton, *Resolved*, That the thanks of this Society be presented to John Price Wetherill, Esq., for the extensive and valuable collection of British and American Fossils presented by him this evening; a collection which is admirably adapted to convey instruction in the most pleasing departments of Geological Science, and which is accepted by his fellow members as one of many proofs of his regard for the interests of this Institution.

Stated Meeting, July 14, 1846.

VICE PRESIDENT MORTON in the Chair.

A letter was read from Jacob Tremper, Esq., dated Dresden, N. Y. July 6, 1846, containing some general meteorological observations made by himself in his vicinity; and requesting the transmission to him of Vols. 1 and 2 of the Proceedings.

The chairman read an extract of a letter from Mr. Alexander Maclure, dated, New Harmony, Ind., July 6, 1846, stating his intention to transfer to the Academy all his right, title, and interest in certain Virginia lands.

Prof. Johnson read some extracts from a printed copy of a bill now before Congress, from the Library Committee, providing for the publication of an additional number of copies of the Scientific reports of the late South Sea Exploring Expedition.

Prof. Johnson made some remarks in relation to the bill,

and congratulated the Society, on the prospect of a copy being soon obtained for its Library.

Meeting for Business, July 8, 1846.

VICE PRESIDENT MORTON in the Chair.

The Committee on Dr. Leidy's paper on the Anatomy of Spectrum femoratum, Say, reported in favor of publication.

On the Anatomy of Spectrum femoratum, Say.

By JOSEPH LEIDY, M. D.

Spectrum femoratum is one of those singular insects which from their appearance, in localities where they are found, are commonly known under the name of "Walking Sticks."

This species was first described by the distinguished naturalist, formerly in connection with our Society, Thomas Say, and a description and drawing of it will be found in the third volume of his American Entomology. Individual specimens have been found in most parts of the United States, but I have not learned of any place where it is abundant, excepting in the State of Iowa, from whence I obtained my specimens, through Dr. B. J. Kern, who informs me they are found in considerable numbers, frequenting high bluffs or dry exposed situations, creeping on the ground or on decaying timber.

It belongs to the order Orthoptera, family Mantidæ. The male insect measures 2 inches 9 lines in length, and one line in breadth; the female, 3 inches, 7 lines in length, and 2 lines in breadth at the thorax, and $3\frac{1}{2}$ lines at the abdomen.

The head is oval; the eyes are somewhat protuberant. It has no simple eyes. The antennæ, in the male, are about 2 inches in length; in the female, $1\frac{1}{2}$ inches; setaceous, and numerously jointed, the joints (Fig. 1.) being long, oval and hirsute.

The thorax has three segments, the two posterior of which form full one third the length of the whole body. The smallest rudiment of wings does not exist. The anterior and posterior pair of legs, in the male, are two inches in length, the intermediate pair one and one-half inches; in the female they are all about half an inch shorter. They are narrow, and much separated in the walking position. The thighs of the central pair of legs in the male are comparatively thick and the thighs of the central and posterior pairs, have at their distal extremity an acute projecting spine, long in the male, short in the female. The tarsus (Fig. 2.) is five jointed, each joint being furnished with stiff hairs and at the under part of the distal extremity, a pair of hard, smooth, shining black tuber-

cles. The last joint is armed with two hooked phalanges having placed beneath them a round and thick soft pad. The abdomen has nine segments. The last abdominal segment, in both sexes, is furnished with two short caudal appendages. The external part of the sexual apparatus is articulated with the ventral plate of the seventh abdominal segment.

Of the digestive apparatus. The oral organs are mandibulate or masticatory. The labium (Fig.3,) is in four pieces,two of which are external and one longer than the internal. They are somewhat claviculate in shape,have each a black spot at the extremity and articulate with the mentum, properly a fifth piece to the labium. The labial palpi (Fig. 3, a,) articulate with the mentum, are hirsute, and three-jointed, two of the joints being oval and the third lanceolate in shape. The tongue, (Fig. 4) which is internal as regards the mouth and is generally considered to belong to the labium, is flat from side to side, of a curved triangular form, corneous in structure, and ciliate upon its upper edge.

The maxillæ (Fig. 5,) are tridentate and slightly hairy. The maxillay palpi (Fig. 5, a.) are five-jointed and hirsute ; the first two joints are subrotund, the next two conical, and the last one lanceolate in form. The mandibulæ (Fig. 6,) are very hard, short, and strong, and present a triangular molar surface, with two of the sides raised into trenchant, sharp edges, resembling very much a gouge, and well adapted for cutting the harder vegetable substances. The labrum (Fig. 7,) is slightly convex and emarginated. The intestinal canal (Fig. 8,) extends in a straight line, the length of the body, from the mouth to the anus, and is broad and capacious throughout. The pharynx is almost null. The œsophagus, at first narrow, after a few lines of its course almost abruptly dilates into a tube of large calibre, extending nearly one half the length of the whole canal, and may be considered in the light of a combined crop and œsophagus, as it appears to be a receptacle of the food, in which the latter undergoes some change preparatory to being received into the stomach, and I will, hence, call it the œsophageal crop. (Fig. 8, a.) Its inferior part (Fig. 9,) becomes contracted in shape like the neck of a Florence flask, and projects into the cavity of the stomach. The orifice opening into the stomach is narrow, and has a valve-like appendage connected to its lip. The exterior or muscular tunic of the œsophageal crop is thick and strong ; its transverse fibres are well marked. The epithelium is comparatively thick and tightly adherent to its basement membrane.

This portion of the alimentary canal I found to be full of coarse particles of decaying wood, which I infer to be the food of the animal.

The stomach (Fig. 8, b.) is about half an inch in length, and of very little greater breadth than the preceding receptacle. Its parietes are comparatively thin, and present internally numerous transverse rugæ which pass from a longitudinal ruga in front to a corresponding one behind. The muscular investment is very thin ; the epithelial surface is soft and readily separable from the basement membrane, which latter makes up the greater part of the thickness of the stomach.

The duodenum (Fig. 8, c.) is only distinguishable from the stomach by a narrowing of its capacity and the disappearance of the rugæ. It presents the same structure as the stomach. Its length is about three times that o

the latter, and it receives near its middle, where it undergoes a narrow contraction, the biliary vessels. The contained mass of the stomach and duodenum has a pultaceous consistence.

The ilium (Fig. 8, e.) is not more than four lines in length, is exceedingly contracted, and opens directly into the rectum.

The rectum (Fig. 8, f.) is about the same length as the ilium, is moderately capacious, and has thick musculo-epithelial parietes. It presents internally several columns or longitudinal folds, which give a columnar appearance to the excrement of the animal. The anus opens at the extremity of the last abdominal segment between the caudal appendages.

The salivary glands (Fig. 8, g.) two in number, are placed laterally upon the anterior part of the œsophageal crop. In structure they are of the highest order, being granulated or conglomerate, one of the rarest forms in the economy of insect life. Their ducts open into the mouth.

The biliary vessels (Fig. 8, h. Fig. 11,) are numerous, moderately long, and form a double attachment to the duodenum. They are connected at their commencement to the external tunic of the duodenum just above the middle, in three rows, (Fig. 10,) one below the other, from whence they pass downwards nearly to the termination of the duodenum, then doubling upon themselves, running forwards, they finally form the connection of entry about the middle of the duodenum, at the contraction before mentioned, (Fig. 11.) When highly magnified, they present a structure of basement membrane filled interiorly with organic nuclei and cells, (Fig. 12.)

The Generative apparatus.—In the female: The ovaries (Fig. 8, i.) two in number, are placed within the abdomen on each side of the duodenum, and are about 18 lines in length. Each ovary consists of numerous ovigerous tubes (Fig. 13, a.) 4 or 5 lines in length, which commence very narrow, gradually dilate, and join a common tube, the oviduct. The ovigerous tube contain ova in various stages of development, from a mere point at their commencement to the fully formed ovum at their termination. The perfected ova measure 1½ lines in length, are oval and smooth. The oviducts (Fig. 8, j, Fig. 13, b.) are narrower and pass backwards and join each other beneath the ileum to form a common canal, the vagina. The vagina (Fig. 13, c.) is 2½ lines long, its external orifice is placed between an oval ventral plate (Fig. 13, d. Fig. 14, a.) articulating with the extremity of the ventral plate of the sixth abdominal segment, and an upper convex plate provided with four curved and pointed forceps, (Fig. 13, e.) articulating with the seventh abdominal segment, which probably acts the part of an ovipositor.

In the male, the genitalia are very simple. The testes (Fig. 15, a.) consist of a pair of comparatively thick and short tubes, forming each a single convolution, and joining each other beneath the ilium to form the ductus ejaculatorious (Fig. 15, b.) which proceeds to the penis. The penis (Fig. 15, c.) is external to the body, and is placed below the eighth abdominal segment, but articulates with the seventh. It is short, semi-oval in form, with a short pointed process behind, is enveloped by chitinous membrane, and is received in a calx (Fig. 15, d.) formed of chitine, which articulates with a small convex segment attached to the ventral plate of the seventh abdominal segment.

The Nervous system.—The cerebrum (Fig. 17, a.) placed above the œsophagus, in form is like two pyriform bodies placed side by side, with the apices anterior and divergent to the base of the antennæ. From the most anterior part of each lateral mass passes off the antennal nerve, (Fig. 17, b.) and from the external side, just posterior to the latter, the optic nerve, (Fig. 17, c.) From the base of the optic nerve and the cerebrum immediately posterior proceed two small branches, which unite to form a single cord, the analogue of the sympathetic nerve (Fig. 17, d.) which passes backwards along the side of the œsophageal crop, to which, after dividing into two principal branches, it is ultimately distributed by numerous minute twigs. Antero-inferiorly the cerebrum sends off two branches which pass forwards, unite, and form the frontal ganglion (Fig. 17, e.) from which proceeds backwards, beneath the cerebrum, a single cord running along the upper surface of the œsophageal crop nearly to its termination. These two latter branches, the frontal ganglion, and the single resulting cord, constitutes the nervus recurrens, or nervus vagus, (Fig. 17, f.) The nervus vagus, after passing the cerebrum, forms a small swelling, which gives off minute ramuscles to the salivary glands and neighboring part of the œsophageal crop. It also forms a ganglion (Fig. 17, g.) of moderate size upon the lower part of the œsophageal crop, from which proceed six principal nerves to be distributed to the œsophageal crop and stomach.

The ventral cord consists of a chain of eleven ganglia, connected in their length by a double commissure.

The first of this chain, the cerebellum, (Fig. 17, i.) is a cordiform ganglion situated beneath the commencement of the œsophagus, and connected to the cerebrum by its appropriate commissures, gives off the mandibulary, maxillary, and labial nerves.

The three following ganglia are the thoracic ganglia, (Fig. 18, a.) the first of which is simple, the two others double. These give off nerves both to the extremities and to the neighboring parts.

The seven remaining ganglia are the abdominal. (Fig. 18, b.) They are all single and give off numerous minute ramuscles in their vicinity.

Explanations of the figures.

Fig. 1. Part of one of the antennæ of spectrum femoratum, highly magnified.

Fig. 2. Tarsus of do., magnified.

Fig. 3. The labium, magnified; a, the labial palpi.

Fig. 4. The tongue, magnified.

Fig. 5. The right maxilla and palpus, (a,) magnified.

Fig. 6. The right mandibula, magnified.

Fig. 7. The labrum, magnified.

Fig. 8. The intestinal canal, &c., of the female, the size of nature; a, œsophageal crop; b, stomach; c, duodenum; e, ileum, f, rectum; g, salivary glands; h, biliary vessels; i, ovaries; j, oviducts; k, an ovum in its passage down the oviduct; l, inferior ganglion of the nervus vagus.

Fig. 9. The inferior portion of the œsophageal crop and stomach laid open.

Fig. 10. Shows the connection of the commencement of the biliary vessels with the duodenum.

Fig. 11. Biliary vessels and place of opening into the duodenum.

Fig. 12. Portion of a biliary tube, highly magnified.

Fig. 13. Lower part of the female generative apparatus; a, an ovigerous tube containing ova; b, lower part of the oviducts; c, vagina; d, oval ventral plate; e, upper plate.

Fig. 14. The posterior four segments of the abdomen of the female; a, oval ventral plate; b, upper plate.

Fig. 15. Genitalia of the male, magnified; a, testus; b, ductus ejaculatorius; c, penis; d, calyx.

Fig. 16. The posterior five segments of the abdomen of the male.

Fig. 17. Magnified view of the cerebrum and cerebellum; a, cerebrum; b, antennal nerve; c, optic nerve; d, sympathetic nerve; e, frontal ganglion; f, nervus vagus; g, ganglion at the termination of the nervus vagus; i, cerebellum.

Fig. 18. Magnified; a, thoracic ganglia of the ventral cord; b, abdominal ganglia.

The Committee on Dr. Hallowell's paper on the Anatomy of Harpyia destructor, reported in favor of publication.

On the Anatomy of Harpyia destructor, Cuv., or Harpy Eagle of South America.

By EDWARD HALLOWELL, M. D.

The animal from which the following description was taken, died in one of the menageries of Philadelphia of a tuberculous affection of the lungs. It is remarkable for the great development of the lower extremities, which are sufficiently powerful to enable it to carry off a goat with facility. It is even stated that it has the power to carry off the dead body of a man, but such accounts are evidently fabulous. It is said to be solitary and to feed upon sloths and other small quadrupeds.

Vertebræ. There are 13 cervical vertebræ. The bodies of the four first are quite short; the seventh measures six and a half lines in depth upon its anterior face; the transverse processes attached to the anterior extremities of these vertebræ are well characterized, the longest being 4 lines in length; a small tubercle exists at the base, at the inner margin of the process in the sixth, seventh, eighth and ninth. Inferior spinous processes are observed in the first, second, fourth and fifth, and from the eleventh to the last; the superior spinous processes are well marked in the second, third, fourth and fifth, and in the tenth, eleventh twelfth and thirteenth; the superior spinous process of the thirteenth is square, and resembles that of the first dorsal, except that its breadth is not so great. There are inferior spinous processes to the five first dorsal; and there is a rudiment of one attached to the sixth; those attached to the third, fourth and fifth are the longest; the middle one of these three is broader at its base than either of the others; the inferior spinous processes of the caudal vertebræ are five in number; a complete foramen for the transmission of an artery exists in each of the four posterior; in the first it is not observed; the bony processes passing from one transverse process to another are well defined, but there is no

anchylosis; there are no spines or processes attached to the anterior face of the lumbo-sacral bone; a slight ridge exists near its posterior extremity; the fourth and fifth transverse processes of the caudal vertebræ are more developed than either of the others; transverse processes are observed in all but the two last; the dorsal spinous process of the penultimate vertebra is well characterized; none of the caudal vertebræ are truly anchylosed; there are eight caudal vertebræ and nine dorsal; the vertebræ present numerous foramina for the transmission of air; the spinous processes of the dorsal vertebræ are all separated; none of their bodies are truly anchylosed.

The keel of the sternum is well developed; there are no notches in the posterior border; near its extremity are two large foramina, eleven lines in length, which extend to within two and a half lines of the posterior margin; the coracoid bones are remarkably strong and powerful, being greatly expanded at their base; the furcula is separated from the sternum a distance of nearly half an inch. The scapula and clavicles present nothing remarkable in their conformation; there are eight ribs, two of which appear to be wanting, the pits for their reception being alone observed; the six which exist are attached to the sterno-costal bones; there are caudal appendages to the second, third, fourth and fifth; that of the second meets the anterior margin of the fourth about its middle; none of the ribs are anchylosed with the pelvis.

Cranium. The foramen magnum is nearly horizontal; two well marked depressions exist upon the posterior and inferior aspect of the occipital bone; between them is a small ridge four lines in length; it is very narrow, presenting a marked contrast in this respect with the ridge in the same part in the grey vulture of Africa which measures half an inch in breadth; the supraorbitar and lachrymal bones are of nearly equal length; the former is rounded at its posterior extremity where it presents a broad expansion, the corresponding part of this bone in the grey African vulture terminates in a point; that part of the skull immediately above these depressions is much flattened; the ossa communicantia are seven lines in length and of moderate thickness. The opening for the nostrils is four lines in breadth; the posterior extremity of the lower jaw does not project beyond the upper; the cranium presents generally a smooth surface exteriorly.

Anterior Extremities. The humerous is well developed. On its internal aspect is a well marked ridge, presenting a broad and somewhat rough surface, inclining backwards, beneath which is the hole for the transmission of air; the humerus immediately below this is compressed laterally, having a triangular form; it is concave near its inferior extremity posteriorly, and convex in front; the middle of the bone is smooth and rounded; the inferior articulating surface presents two oblong convexities for articulation with the bones of the forearm, with a narrow fossa between them; there is but one carpal bone in the subject under examination, but there is clearly a smooth articulating surface for another; the radius is a long and slender bone, having about one half the diameter of the ulna; there are two small ridges upon its distal extremity; the ulna has a well marked olecranon process; the metacarpal bone corresponding with the radius has three

times the breadth of the bone opposite, at its middle; there are two phalanges to the radial finger; the ulnar phalanx is a slender styliform appendage pointed inferiorly.

The *pelvis* is narrow in front, broad posteriorly; it presents a small process on each side three lines behind the last rib, that portion of the pelvis comprised between this process and the cotoloid cavity is much compressd; the ossa pubis look backwards as in most birds; the cotyloid cavity is incomplete posteriorly.

Posterior extremities. There is no proper neck to the femur; the large trochanter presents a well marked rough process posteriorly; there is no small trochanter; on the lower side of the trochanter at its inferior extremity upon the anterior face of the bone, is a foramen three lines in length and two in breadth, for the admission of air; the outer condyle of the femur is large; the groove upon inferior part is well marked; there is a rough eminence upon its external face, with a depression in front of it; the upper surface of the tibia is flat for the most part; the anterior margin projects considerably beyond the anterior face of the bone, but there is no spine extending upwards as in some birds; the superior extremity of the tibia is remarkable for the deep pit which it presents upon its posterior face; it measures twelve lines in length; there are two holes at its distal extremity situated posteriorly, with an oblique ridge between them; it is triangular in form above, rounded in the middle, and flattened inferiorly; a marked depression exists upon the anterior face of it, at its inferior extremity. The foramen for the transmission of the interosseous artery is placed two and a quarter inches from the head of the tibia, about a line from its junction with the fibula; the fibula is a slender bone anchylosed with the tibia in the greater part of its extent, as in other birds. The tarso metatarsal is the most remarkable bone in the body; it is a large and powerful bone, concave posteriorly, presenting numerous very well marked depressions and elevated ridges upon its anterior aspect; there is a foramen for the transmission of air near its outer margin, five lines from its proximal extremity; there is also another two lines in breadth, and two in extent, near its inner margin, within two and a half lines of the superior margin of the outer groove, at the extremity of the bone; the outer aspect of the bone is flat in nearly its whole extent, presenting a smooth surface; it measures seven lines in an antero-posterior direction at its middle; its inner margin forms a sharp edge extending the whole length of the bone as far as its junction with the accessory bone, for the articulation with the first phalanx of the powerful back toe; the articular eminences at the extremity of the bone are separated from each other by intervals each about two lines in breadth; the middle eminence is the largest; the remaining two are of nearly equal size; the articulation of the accessory bone is placed seven lines and a half above the level of the anterior toes; the accessory bone is large and triangular in shape, presenting a smooth surface for its articulation with the first phalanx of the hind toe; its posterior margin measures thirteen lines in length; it presents a sharp edge continuous with that of the inner margin of the tarso metatarsal bone for seven lines

of its extent, the remaining portion being expanded laterally, and presenting a somewhat oval and rough surface. The toes are strongly developed; the back toe and inner toe are the most powerful; the first phalanx of the inner toe is remarkable for its shortness; it is somewhat quadrangular in shape, and presents a deep groove upon its posterior extremity, for articulation with the tarso-metatarsal bone.

Measurements.

	Feet.	*Inches.*	*Lines.*
Height, measured from extremity of beak to extremity of middle toe,	1	7¾	0
Bi-parietal diameter of head		2	5
Vertical, do. do.		1	8
Depth of upper mandible at base,		1	
" lower " "			3
Length of lower mandible,		3	
" upper following the curve		2	4
Breadth of coracoid bone at base,		1	3
Width of interspace between clavicles at time of junction with posterior and superior margin of coracoid bone,		2	4
Length of scapula,		4	
Length of sternum measured from anterior extremity of keel,		4½	
Breadth of sternum		2	
Greatest depth of keel of sternum,			11½
Length of fourth sterno-costal bone,		1	2
Breadth of pelvis anteriorly,		1	5
Greatest breadth posteriorly,		1	10
Distance between anterior extremity of pelvis and posterior margin of cotyloid cavity,		2	8
Distance between anterior margin of cotyloid cavity and posterior extremity of pelvis,		2	11
Length of lumbo-sacral bone,		2	19
" caudal vertebræ,		2	
" last bone of coccyx,		1	5
" humerus,		6	9
" radius,		7	7
" ulna,		8	2
" metacarpus,		3	4
" hand,		2	
" thumb,		1	
" first phalanx of radial finger,		1	2
" second " " "			10½
" ulnar " " "			5½
Breadth of first " " "			5
Length of femur,		4	8
" tibia,		5	4
" fibula,		4	7½

	Inches.	*Lines.*
Length of tarso-metatarsal bone,	3	9
" proximal phalanx of hind toe,	1	6
Breadth at proximal extremity,	1	
Length of distal or terminal phalanx of hind toe at base,		5½
" proximal or first phalanx of inner toe,		5½
" second " "	1	4
" third " "		5
" first phalanx of middle toe,		14
" second " "		7½
" third " "	1	
" fourth at base,		3
" first phalanx of outer toe,		6
" second " "		3
" third " "		2¼
" fourth phalanx of outer toe,		11
" fifth at base, (along inferior surface,)		3
" hind claw measured along its upper curve,	3	1
" inner claw,	2	5½
" middle claw,	1	8
" outer claw,	1	4
Distance between distal extremity of hind claw and distal extremity of middle claw,	7	5
Distance between distal extremity of hind claw and distal extremity of inner claw,	5	3

(*To be continued.*)

The Monthly report of the Corresponding Secretary was read and adopted.

ELECTIONS.

Elisha J. Lewis, M. D., of Philadelphia, was elected a member:

And Mr. Edward Wilson, formerly of Philadelphia, now of London,

And M. de Vernueil, President of the Geological Society of France, were elected Correspondents of the Academy.

Stated Meeting, August 4, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

One hundred species of Plants from Texas, Missouri, Illinois, &c., from the collections of F. Lindheimer, Dr. Engelmann, and C. A. Geyer. Presented by Dr. Engelmann, of St. Louis.

DONATIONS TO LIBRARY.

Report of the Commissioner of Patents for the year 1845, read 24th Feb. 1846.—pp. 1184. From the Hon. J. R. Ingersoll.

Charter, Constitution, and By-Laws of the Cincinnati Horticultural Society, with a report of its transactions for 1843 '44 '45. From the Society.

Proceedings of the American Philosophical Society, Vol. 4. No. 34. September to December, 1845. From the Society.

Proceedings of the Historical Society of Pennsylvania, Vol. 1. No. 6. From the Society.

Proceedings of the Boston Natural History Society, pp. 121 to 136 inclusive. From the Society.

Mr. Webster's vindication of the Treaty of Washington of 1842. Washington, 1846. From the Author.

Charts of the Harbors of Annapolis, Maryland, and New Bedford, made under the direction of A. D. Bache, Esq. Superintendent of the U. S. Coast Survey. From the Treasury department, through Prof. Bache.

Dr. Thomas B. Wilson presented the following valuable works, in 4 vols. 8vo., illustrated by numerous colored plates; by R. P. Lesson:

Histoire Naturelle des Oiseaux-mouches.
" " " Oiseaux de Paradis et des Epimaques.
" " " Colibris.
Les Trochilidées, ou les Colibris et les Oiseaux-mouches.

Also, from the same donor, Part xii (completing the work) of Prof. Owen's History of British fossil mammalia and Birds.

Manual de Malacologie et de Conchyliologie: Par. H. M. Ducrotay de Blainville. 1 vol. 8vo. with a vol. of Plates. Paris, 1825. Presented by William Hembel, Esq.

Greenough's large Geological map of England and Wales, with a 4to memoir explanatory of the same. From the same.

Atlas der Cranioscopie, &c., von Dr. Carl Gustav. Carus. Heft 1. 4to. Leipzic, 1843. From Dr. Morton.

Notice sur un nouveau genre de Cetacé des Rivières du centre de l'Amerique meridionale, par M. A. D'Orbigny. 4to. From the Author.

Extrait des Rapports (Acad. Royale des Sciences de France,) sur les résultats scientifiques du voyage de M. Alcide D'Orbigny dans l'Amerique du sud, pendant les années 1826, '27, '28, '29, '30, '31, '32 and '33. 4to. From the same.

Ueber eine bisher unbekannte, krankhafte veränderung an Menschenknochen aus Peru, von Dr. Eugen Zschokke. Aarau, 1845. From Dr. J. J. Von Tschudi.

Fauna Peruana. Reptilia. Von Dr. J. J. Von Tschudi. From the Author.

Nachträgliche bemerkungen zu meinem Conspectus Avium, &c. Von Dr. von Tschudi. From the Author.

Orthop"disches Institut; Von J. Heine, M. D. 4to. From Dr. G. Jaeger.

Ehrengedchtniss des königl: Wurtemburgischen Staatsraths von Kielmeyer, von Dr. G. Jaeger. From the same.

Karl Franz's Bellingeri's anatomisch-physiologishe untersuchungen über das Rückenmark und seine nerven—Deutsch bearbeitet von Dr. Heermann Kaulla. 4to. Stuttgart, 1833. From the same.

Versuche und Beobachtungen über den kartoffelbau und die krankheiten der kartoffeln besoinders im Jahr 1845. Mit

einem anhang über küntslich erzeugten Guano. Von Dr. Eb. Fr. Manz. Stuttgart 1845. From the same.

Beiträge zur Petrefaktenkunde, von Heermann von Meyer. Fossil Säugethiere. 4to. From the same.

G. F. Jaeger Dr. A. C. N. C. S. de monstrosa folii Phœnicis dactyliferæ conformatione, &c.; cum tabulis 4 lithographicis. 4to. From the same.

Der Schädelban des Mosasaurus durch beschreibung einer neuen art deiser gattung erlautert: Von Dr. August Goldfuss. 4to. From the same.

Newspaper article on the geology of Middletown, (Conn.) and vicinity. By Joseph Barratt, M. D. From the Author.

Letters were read:

From A. D. Bache, Esq. dated Washington, July 31, 1846, presenting the charts received this evening.

From the Secretary of the American Philosophical Society, acknowledging the receipt of certain numbers of the Proceedings of the Academy, furnished at the request of the Librarian of that Society.

From the Secretary of the New York Lyceum of Natural History, dated Aug. 5, 1846, acknowledging the receipt of the last number of the Proceedings.

From Dr. J. J. Von Tschudi, dated St. Galen, April 4, 1846; acknowledging the receipt of the Academy's Proceedings, and presenting the works received this evening.

From Judge Tremper, dated Dresden, N. Y., July 1846, giving the results of observations and experiments made by himself, with the view of ascertaining the amount of evaporation from land and water surface in his vicinity, and also the temperature of Seneca Lake.

A paper by Dr. Joseph Leidy, entitled, 'Description of a new genus and species of Entozoa,' was read and referred to Dr. Zantzinger, Mr. Phillips, and Dr. Morton.

The Chairman exhibited a living specimen of a bird, which with another of the same description, had recently been ob-

tained by Mr. Augustus E. Jessup, from a farm in the vicinity of Wilmington, Delaware, where they had been raised. These birds present certain characters, which justify the presumption that they are hybrids between the common domestic fowl and the guinea fowl. They will be fully described in a subsequent number of the Proceedings.

A report from the Building Committee was presented and read, stating that a contract had been entered into with a competent person, for making the proposed alterations and additions to the Hall; the work to be commenced forthwith, and to be completed on the 1st of February next.

Stated Meeting, August 11, 1846.

DR. BRIDGES in the Chair.

Dr. Morton read a letter from Mr. Charles Lyell, dated London, July 14, 1846, enclosing a communication from Prof. Owen, entitled, 'Observations on the fossils from the geological cabinet of the Academy of Natural Sciences of Philadelphia, collected from the Brunswick Canal, Georgia, by J. Hamilton Couper, Esq., and presented by the latter to the Academy.'

The paper was read and referred to the following committee: Dr. Morton, Dr. Hallowell, and Mr. Richard C. Taylor.

Mr. Lyell stated in his letter that the fossils described in the paper, and transmitted to Prof. Owen through himself for that purpose, would be shortly returned to the Academy, with a drawing of Harlanus Americanus.

A letter was read from Dr. Asa Gray, Corresponding Secretary of the American Academy of Arts and Sciences of Boston, dated Cambridge, Mass., Aug. 4, 1846, announcing that a copy of vol. 2, new series, of the Memoirs of that Society, had been forwarded for the Academy, and offering to supply any other published vols. of the Memoirs not already contained in its Library: also requesting in exchange the publications of the Academy.

Whereupon, on motion of Dr. Morton, it was

Resolved, That a copy of vols. 1 and 2 of the Proceedings, and such volumes of the Journal as were at the disposal of the Publication Committee, be presented to the American Academy, at Boston.

Meeting for Business, Aug. 25, 1846.

VICE PRESIDENT MORTON in the Chair.

The Committee, to whom was referred the following communication, reported in favor of publication.

Observations on certain Fossils from the Collection of the Academy of Natural Sciences of Philadelphia.

BY RICHARD OWEN, ESQ., F. R. S., &c. &c.

[The organic remains which form the subject of the following paper by Prof. Owen, are a part of the series collected by James Hamilton Couper, Esq., during the excavation of the Brunswick Canal, near Darien, in Georgia. Prof. Owen, having expressed a wish to examine these fossils, they were transmitted to him through Mr. Charles Lyell, by authority of the Academy, and the following highly interesting memoir was promptly returned. Besides the references by Prof. Owen to Dr. Harlan's original paper in the American Journal of Science, some valuable remarks by Mr. Couper himself, will be found in volume I. of these Proceedings, page 216.]

Genus *Bos.*

No. 1. Distal half of right humerus: it is about one-sixth less than the same part in *Bos primogenius*, and more resembles that of the Aurochs: it belongs, probably, to a species of *Bison.*

No. 2. The left tibia of the same species.

Genus *Equus.*

No. 3. Fragments of a lower molar tooth of the size of the *Equus cabellus*: but the specific character not determinable.

Genus *Mastodon.*

No. 4. A portion of tusk, labelled *Hippopotamus*, but satisfactorily known to have belonged to a Proboscidian Pachyderm by the decussating curved lines, intercepting lozenged-shaped spaces, at the transverse fractures of the ivory at the two ends. (The structure is shown in British Fossil Mammalia, p. 291, fig. 101, c.)

Transverse fractures of the tusks of Hippopotamus, show fine concentric lines, as figured in British Fossil Mammalia, p. 402, fig. 160.

From the size, shape and slight degree of curvature of the Georgian fossil, it may probably have belonged to the left side, lower jaw, of the *Mastodon giganteus.*

Genus *Harlamus.*

No. 5. The middle part of the right ramus of the lower jaw of a large Pachyderm, with the last three (or true) molars, part of the premolar next in advance, and part of the socket of another premolar. The crowns of all these teeth appear to have been worn down by mastication to their base; they present the proportions, and the last molar, in a cast transmitted to me by my lamented friend, Dr. Harlan, appears to retain the anterior of the two large transverse ridges, which characterize the teeth of the genus *Lophiodon*, Cuv.: it likewise possesses the large posterior lobe or talon, which distinguishes this tooth in the Lophiodon from that of the Tapir. The teeth of the fossil from Georgia a little exceed in size those of *the Lophiodon Isselanus* (*Grand Lophiodon d'Issel*, Cuvier, "Ossemens Fossiles," ed. 1822, tom. 2. pt. 1, p. 184, pl. 3, fig. 3,) the antero-posterior diameter of the last molar in that species being one inch and eight lines, and in the present fossil one inch and ten lines. But the depth of the jaw below the middle of the last molar in the present fossil is three inches; whilst that in the *Lophiodon Isselanus* in the figure cited, is scarcely two inches; and Cuvier expressly states (p. 186,) that it surpasses in depth the corresponding part of the jaws of the *Lophiodon medius* (pl. 3, fig. 1,) which has molar teeth of the same size as in the *Lophiodon Isselanus.*

The present fossil has been described and figured in "Silliman's American Journal of Science," vol. 43, 1842, pl. 3, fig. 1, under the name of *Sus Americana*; Dr. Harlan conceiving that from its general appearance and number of the teeth this fragment bore a close analogy with the same part in the *Sus babirussa*, Buff, acknowledging, however, that the Babyroussa "was a much smaller animal." Besides the difference of size, the last molar in the fossil has the anteror transverse ridge proportionally larger, and the posterior lobe proportionally smaller than in the Babyroussa, resembling the *Lophiodon* in the points in which

it thus differs from the species of *Sus* cited. The form of the fossil jaw differs at the part supporting the last molar from that in the Babyroussa, where the socket of the last molar overhangs the inner surface of the ramus, whilst in the fossil the inner surface of the ramus beneath the last molar describes a gentle convexity from the tooth to the lower margin of the ramus. The outer part of the ramus of the jaw of the Babyroussa begins to expand below the fourth and fifth molars, counting forwards from the last, to form the socket of the large tusk; but the fossil jaw does not offer the least indication of an enlargement for that purpose; and the fractured anterior end, as displayed in the cast, is very different in shape from the corresponding part of the jaw in the Babyroussa, and shows merely the wide dental canal, and no socket for the tusk which would be here situated in the Babyroussa or Wild Boar.

The nearest approximation which I could make from a study of a cast of the fossil in question to any known existing or extinct animal, was to the great tapiroid Pachyderms; but I added in my description of this cast in the Catalogue of Fossil Mammalia and Birds in the College of Surgeons 4to. 1845, p. 198, "that ulterior discoveries, may, indeed, show that the Lophiodont dentition was combined with other characters in the American fossil, necessitating a generic distinction, and it is well to remember that the dentition of the *Macranchenia* of South America, a three-toed Pachyderm with an astragalus almost identical with that of the Lophiodon, and of a size which agrees with the jaw of the fossil *Sus Americana* of Harlan, has yet to be discovered."

The original of the cast shows the course of the enamel on the outer side of the penultimate molar; it there defines an anterior lobe of the crown about one-third the antero-posterior extent of the crown, by a close, straight fold of enamel penetrating inwards about 2½ lines.

The anterior lobe or transverse ridge of the corresponding tooth of a Lophiodon might, perhaps, present a similar appearance, if worn down to the base of the crown.

But in the present fossil, the enamel proceeds to define a middle lobe on the outer side of the crown, shorter than the foregoing, beyond which the enamel and dentine are worn obliquely away to the base of the posterior fang; the indication of the middle ex-

ternal lobe or festoon of enamel is, however, decisive against its generic relationship with *Lophiodon*.

This indication of the arrangement of the enamel,* slight as it is, reminds one of that in the lower molars of the *Toxodon*, and another feature of resemblance is the apparent interruption of the enamel at the anterior part of the molar in the fossil. If the presence of two distinct fangs in the Georgian Fossil were adduced as distinguishing it from the Toxodon, it might be replied that perhaps the long curved rootless molars in that animal at the last period of age might, as in the Horse, acquire roots.

But the trilobed character is on the outside of the molar in question, and on the inside of those of the Toxodon; in which also the middle lobe only has a coat of enamel, not the anterior or posterior of the inner lobes: there is no doubt, therefore, that the Georgian Pachyderm is generally distinct from *Toxodon*, as it is from *Lophiodon;* and it would seem to have diminished the interval which divides the strange Gliriform Pachyderm of South America, from the more normal Tapiroid forms of Pachyderms which are found fossil in the old world.

As naturalists have accepted the latinized Indian word *Tapirus* as the generic name of the existing American Pachyderm, which makes the nearest approach to the present remarkable fossil, they will probably sanction the application to the genus and species which it represents, of the name *Harlanus Americanus;*† in honor of the indefatigable and accomplished Naturalist by whom the fossil was first made known to Science.

Royal College of Surgeons, London, July 8th, 1846.

The following gentlemen were elected Correspondents of the Academy:—

J. Lawrence Smith, M.D., of Charleston, S. C.
John M. B. Harden, M.D., of Liberty Co., Georgia.
John H. Redfield, Esq., of New York.
Major Joseph Delafield, of New York.

* Fossil Mammalia of the Beagle, pl. v., fig. 2.

† A drawing of this fossil has been made in London under the supervision of Professor Owen, but not yet received. It will appear in a future number of the Proceedings.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. SEPTEMBER AND OCTOBER, 1846. No. 5.

Stated Meeting, September 1, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen, in skin, of Buteo unicinctus, Temm. (Falco Harrisii, Aud.) from the vicinity of Natchez. From Dr. J. C. Jenkins of Natchez.

A small collection of insects, in spirits. From Mr. Gambel.

Mr. Germain, of Burlington, N. J., presented an additional series of cretaceous fossils, from the marl strata west of that city, embracing the genera Ammonites, Scaphites, Baculites, Mya, Coprolites, and some others, with fragments of fossil wood.

The Curators announced that the splendid collection of Birds purchased in Paris by Dr. Thomas B. Wilson, and known as the Rivoli collection, has arrived, and is now deposited in the Hall of the Academy.

Dr. Morton read a paper, describing two living hybrid birds, between the genera Gallus and Numida; which was referred to Mr. Cassin, and Dr. Leidy.

Stated Meeting, September 15, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Memoirs of the American Academy of Arts and Sciences of Boston. Vols. 1, 3, and Part 1, vol. 4, old series, and vols. 1 and 2, new series. 4to. From the Academy.

The Catalogue of Stars, by the British Association for the advancement of Science; containing the mean right ascensions, and north polar distances, of 8377 fixed stars, reduced to January 1, 1850; &c., &c. London, 1845. 4to. From the British Association.

American Journal of Science and Arts. New series, vol. 2, No. 5, September, 1846. From the editors.

Letters were read:

From the Corresponding Secretary of the American Academy of Arts and Sciences of Boston, Dated August 26, 1846, acknowledging the receipt of the volumes of the Proceedings and Journal, authorized by a late resolution of the Academy, to be presented to that Institution.

From Mr. John H. Redfield, dated New York, September 11, 1846, and from Major Joseph Delafield, of same date, severally acknowledging the receipt of their notices of election as correspondents.

From Dr. Z. Pitcher, of Detroit, dated September 3, 1846, addressed to Dr. Morton, proposing to exchange duplicate Bird skins, collected by the late Mr. Douglas Houghton. Referred to the Zoological Committee.

Dr. Joseph Leidy read a paper 'On the mechanism which closes the membranous wings of the genus Locusta,' which was referred to Mr. Haldeman, Dr. Hallowell, and Dr. Bridges.

Stated Meeting, September 22, 1846.

VICE PRESIDENT WETHERILL in the Chair.

DONATIONS TO MUSEUM.

Specimens of Unio bullatus, U. quadrulus, U. plicatus, U. globulus, U. lugubris, Say, U. Nashvillianus, U. parvus, Anadonta subglobosa, Paludina vivipara, and P. integra; from Lake Concordia, and Ouichita river, Louisiana; also Limonites from the Natchez Bluffs. Presented by Dr. Dickeson.

Letters were read:

From the Secretary of the Royal Society of Agriculture, &c., of Lyons, dated 20th June, 1846, presenting to the Academy eight volumes of its Annals, and requesting in exchange the publications of this Society.

From the agent of the Lyons Society, dated New York, September, 1846, announcing that the volumes referred to had been received by him, and awaited the order of the Academy.

From Dr. Charles Huffnagle, of Calcutta, addressed to Dr. Morton, announcing that he had transmitted for deposit in the Academy, a large number of specimens of Natural History from India.

From Mr. C. P. Wickersham, dated Kennett Square, Chester county, Pennsylvania, September 15, 1846, addressed to the Curators, offering to present to the Academy a large slab of sandstone, from the Portland quarries, near Middletown, Connecticut, containing impressions supposed to be of the kind called Ornithoidichnites.

Meeting for Business, Sept. 29, 1846,

VICE PRESIDENT MORTON in the Chair.

The committee on Dr. Leidy's paper, on a new genus and species of Entozoa, reported in favor of publication.

Description of a new genus and species of Entozoa.

BY JOSEPH LEIDY, M. D.

In the course of an investigation of the anatomical structure of the terrestrial gasteropoda of the United States, I discovered a microscopic entozoon inhabiting the fluid contained in the vessie copulatrice or spermatheca of Helix albolabris, since which I have found it to exist in two other species, Helix tridentata, and Helix alternata, and I have no doubt of its existence in others, not yet having had an opportunity of examining further. As there appears to be no known genus in which this animal can be placed, I have been nccessitated to form the following:

Cryptobia. Animal minute; form exceedingly proteoid; internal organization cellular or granular.

C. helicis. Colorless; form, ordinarily elongate, ellipsolid, fusiform, or ovate; caudated, caudæ opposite, one longer than the other. Internal granular structure consisting of two large cells and numerous minute granules. Total length from the 126th to the 100th of a line. Habitat, the vessie copulatrice or spermatheca of Helix albolabris, Helix tridentata and Helix alternata.

The name of this genus is derived from κρυπτὸς, hidden and βίὸω, to live. This singular entozoon in its general appearance and organization appears to be intermediate between Cercaria seminis and Filaria. Its varied form and movements are curious to observe; at one moment globular, then oval, ovate, fusiform, sigmoid, crescentic, &c., it appears as if it would outvie the kaleidoscope in its changes. The motions are vibratile, rotary, with a lateral progression, or whirling in circles like the insect Gyrinus.

Cryptobia helicis might be confounded with the spermatozoa of the animals in which they are parasitic, on account of the organ in which they are found being connected with the generative apparatus, and its supposed use as a spermatheca, but they may be readily

distinguished; the spermatozoa of Helices generally having either a uniform sigmoid or a beaded body, with an enormous proportionate length of tail, and a slow, vibratile motion. It may be well to mention that C. helicis does not exist in the collapsed state of the generative organs.

The subjoined sketch represents some of the principal forms of the animal, highly magnified.

The committee on the following description, by Dr. Morton, of two living Hybrid Birds, reported in favour of publication.

Description of two living Hybrid Fowls, between GALLUS *and* NUMIDA.

By SAMUEL GEORGE MORTON, M. D.

The singular birds which form the subject of this communication, were bred on a farm about seven miles from Wilmington, in the State of Delaware. The person who raised them states, that the eggs that produced them differed in no respect from those of the guinea fowl, were part of a large number that were hatched at the same time, and that the birds are known to be just four years old. My friend, Mr. Augustus E. Jessup, having accidentally observed these birds on the above mentioned farm, purchased them of the proprietor, and sent them to my care, with a request that they might be eventually placed in the Collections of the Academy. Both are yet living and in good health; and the following description, in which I have been materially assisted by my friend Mr. William Gambel, has been drawn up after many examinations, made during a month and upwards that the birds have been in the charge of Mr. Robert Kilvington, horticulturist of this city.

The first of these birds is mottled with the colour of a reddish brown chicken and guinea fowl, (Numida meleagris.) Back and rump lineated with darkish brown and whitish, and a tinge of yellowish brown. Greater wing-coverts, and margins of secondaries, reddish brown; breast, belly, sides and under tail-coverts, dirty white, with scattering feathers of the same. Quills and tail-feathers dusky brown, lineated, and finely speckled like those of the guinea fowl. Two quills in one wing and one in the tail are entirely white. Wings concave and rounded, one foot in length from flexure. First quill an inch and a half shorter than the second, which last is one inch shorter than the third; 3—8 quills about equal. Tail of fifteen feathers, rounded; the two middle ones longest and pointed.

Heads sparsely covered with feathers, almost bare for a considerable distance around the eye. Upper mandible dusky, except at tip, which, with the lower mandible, is whitish; towards the base it is somewhat striated, and covered by a reddish, fleshy cere, elongated at the angle of the mouth into barbles, which, however, are only rudimentary in comparison with those of the guinea fowl. Beneath the skin a distinct, hard, bony ridge can be felt, extending over the top of the head. Another bony ridge extends over the eye, giving it a sunken appearance. The nostrils are half closed by a fleshy membrane; sides of head and front, white. Top of head and nape with linear black feathers, elongated on the nape into hackles. Neck and upper part of the breast reddish-brown. Tarsus very stout, with large, divided scutellæ; length $3\frac{1}{2}$ inches; middle toe and nail $2\frac{3}{4}$ inches. Total length about two feet.

The *second* of these birds bears yet more resemblance to a guinea fowl, both in shape and colour, than the preceding, not being so much mottled with reddish-brown feathers, but principally with white. The bill appears to be not so much arched; the upper mandible is barbled as in the other, and the head is in general the same. Back, shoulders and upper tail-coverts dusky, lineated with whitish like the guinea fowl; greater wing-coverts, fading into white, the tertiaries being margined with the same. One quill white. Quills like the other as to colour and markings; 3d to 6th nearly equal. From flexure the wing measures $11\frac{1}{2}$ inches.

Back of head and neck with black linear feathers, not so much like hackles, as those of the other bird. Breast, beneath and sides, whitish. Tail nearly plucked out, as in the other; upper tail-coverts, full and pendant. The bare flesh around the eye in both birds is tinged with blue.

The sounds which these birds utter are also intermediate, but partake much more of the harshness of the guinea fowl, although they occasionally *cluck* not unlike the common hen.

They are shy, wild and resentful, boldly attacking any one who irritates them. They have several times escaped from custody, and flown a hundred yards or more, when they alight and run with great celerity.

The sex of these birds has not been determined with certainty, but the male characters seem to predominate. During the four years they were on the farm, they were never observed to have sexual intercourse with any other fowls. It is designed on a future occasion to notice their anatomical peculiarities, when the productive organs will be carefully examined.

It has been remarked by a distinguished naturalist, that "many of the birds which compose the gallinaceous order, appear to be less difficult to unite with strange species, than those of any other order. From the great majority of pheasants, mongrels may thus be produced; all the Hoccos (Crax) will couple together in a state of domestication; the pheasant will ally with the cock; the last with the turkey, with which the hoccos born in the domestic state will also unite. It appears, in fact, very possible to produce mongrels from the major part of those gallinæ which are suceptible of cultivation."*

The latter remark receives strong corroboration from the facts we have adduced in this paper; and we believe that a hybrid progeny between the guinea fowl and common fowl is now for the first time made knowu to naturalists. The fact derives its peculiar interest from the remoteness of the genera which have thus produced an intermediate variety.

* Griffith's Cuvier, VIII. pp. 173, 175, 176. Prichard, Researches into the Physical History of Mankind, 1, p. 140. 3d ed.

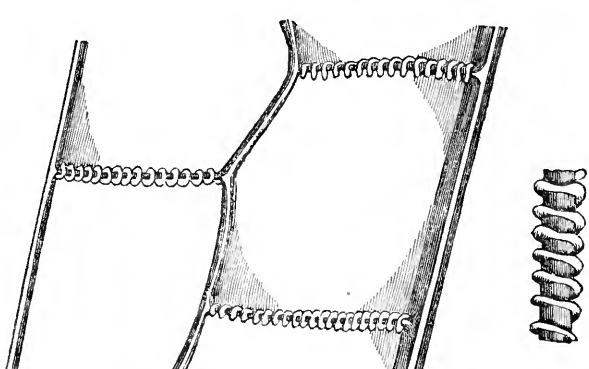
The committee on the following paper by Dr. Joseph Leidy, reported in favor of publication.

On the mechanism which closes the membranous wings of the genus Locusta.

By JOSEPH LEIDY, M. D.

The membranous wings or alæ of the locusts while at rest are folded up, like a closed fan, beneath the anterior pergamentaceous wings. These are opened or expanded by the contraction of appropriate muscles (extensores alæ) contained within the thorax; the tendons of which are inserted into the ribs or longitudinal veins at the root of the wings. When one of the wings is separated from the body of the insect, and stretched open by the fingers, upon letting go, it will be found instantly to close or resume the position of rest.

The mechanism which produces this closure in the separated wing, as well as when attached to the living animal, I find to be spiral ligamentous bands, wound, like the thread of a screw, around the transverse or connecting veins, which latter are also flexible. By this arrangement, upon the contraction of the alary extensors, the spring-like ligaments, or ligamenta spiralia as I will call them, are stretched in the expansion of the wings, and upon the relaxation or cessation of the action of the muscles, the physical properties alone of the ligamenta spiralia, in resuming their unstretched state, close the wings. These ligamenta spiralia are numerous, and exist in all the species of Locusta possessing perfect alæ which I have examined. To this short description I append a drawing of several of these ligaments, magnified, from a preparation in Canada balsam, of one of the alæ of Locusta Carolina.



ELECTION OF CORRESPONDENT.

Prof. Joseph Zuccarini, of Munich, Bavaria, was elected a correspondent of the Academy.

Stated Meeting, October 6, 1846.

Vice President Morton in the Chair.

DONATIONS TO LIBRARY.

Annals of the Lyceum of Natural History of New York. Nos. 6 and 7, Vol. 4. From the Lyceum.

Sur l'usage inopportun des medicamens. Essai du docteur Ascagne Pisani. Traduit de l'Italien par Louise Desmonceaux. Naples, 1846. 12mo. 3 copies. From the Author.

Annales des Sciences physiques et naturelles publiées par la Societé Royale d'Agriculture, &c., de Lyons. Tomes 8. 8vo. From the Society.

Natural History of the State of New York, (published by authority of the government of the State) 11 vols. 4to., including:

1. Zoology of New York, Parts 1, 2, 3, and 5. By James E. Dekay.
2. Mineralogy of New York. By Lewis C. Beck, M. D.
3. Botany. A Flora of the State of New York. Vol. 1. By John Torrey.
4. Geology and Palæontology; comprising Geology of the 1st Geological district of New York, by William W. Mather: of the second Geological district, by Ebenezer Emmons, M. D.: of the 3d Geological district, by Lardner Vanuxem: of the 4th Geological district, by James Hall.

Also, a Geological map of the State of New York. Purchased by order of the Academy.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Nos. 10 and 11. Vol. 2. From the Association.

Historical collections of Louisiana. By Benjamin F. French. New York, 1846. 8vo. From the Author.

Report of the Geological Survey of the province of New Brunswick, with a topographical account of the Public lands and the districts explored in 1842. By Abraham Gesner, F.G.S., Provincial Geologist, &c. St. Johns, 1843. From the Author.

Naturgeschichte derr Infusionsthiere. Von Professor S. Kutorga. Mit einem Atlasse. St. Petersburg, 1839. Carlsruhe, 1841. From L. de Harden, Esq., through Charles Cramer, Esq.

Classification of the forest trees of New Brunswick. By M. H. Perley, Esq. (a newspaper slip.) From the Author.

A letter was read from J. M. B. Harden, M. D., of Liberty county, Georgia, dated 18th September, 1846, acknowledging the receipt of his notice of election as a correspondent.

Also a letter from J. H. Redfield, Esq., Corresponding Secretary of the N. Y. Lyceum, dated 24th September, 1846, acknowledging the receipt of the last number of the Proceedings.

Dr. Dickeson exhibited a large and remarkably varied series of fossil bones, obtained by him from the vicinity of Natchez, Miss. The collection embraces the entire head and half of the lower jaw of the *Megalonyx Jeffersoni*,* now for the first time discovered; together with many parts of the skeleton, and indeed of several skeletons of that animal, sufficient to enable its complete osteological reconstruction. The stratum that contains these organic remains, is a tenacious blue clay that underlies the diluvial drift east of Natchez, and which diluvial deposit abounds in bones and teeth of the Mastodon giganteum.

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* Dr. Dickeson originally suggested, from partial comparisons, that this cranium belonged to the *Megalonyx*, and not to the *Mylodon*, as others had supposed; his opinion was fully confirmed by M. Agassiz on a recent examination; and this distinguished naturalist has proved the *Megalonyx laqueatus* of Harlan, to belong, not to Megalonyx, but to some other but nearly allied genus.

The animals associated with the Megalonyx are, an Ursus, a Bos, two species of Cervus, one or two species of Equus, and several undetermined genera, all which are now in progress of delineation and description for the Academy's Journal.

Dr. Dickeson presented another relic of yet greater interest; viz., the fossil *os innominatum* of the human subject, taken from the above mentioned stratum of blue clay, and about two feet below the skeletons of the Megalonyx and other extinct genera of quadupeds.

This ancient relic of our species, is that of a young man of about sixteen years of age, as determined by its size and form, and by the fact that the epiphyses have separated from the tuberosity of the ischium, and from the crista of the ilium. Nearly all the os pubis is wanting, the upper posterior part of the ileum is broken away, and but half the acetabulum remains. That this bone is strictly in the fossil state, is manifest from its physical characters, in which it accords in every respect of color, density, &c., &c., with those of the Megalonyx and other associated bones. That it could not have drifted into the position in which it was found, is manifest from several facts: 1. That the plateau of blue clay is not appreciably acted on by those causes that produce ravines in the superincumbent diluvial; 2. That the human bone was found at least two feet below three associated skeletons of the Megalonyx, all which, judging from the opposition or proximity of their several parts, had been quietly deposited in this locality, independently of any active current or other displacing power; and lastly, because there was no admixture of diluvial drift with the blue clay, which latter retains its homogeneous character equally in the higher part that furnished the extinct quadrupeds, and in its lower part that contained the remains of man. Dr. Dickeson has announced his intention of returning, at an early period of the present autumn, to resume his explorations in this prolific and most interesting locality; and it is earnestly hoped that his researches may lead to a further elucidation of this important question in science.

Dr. Leidy stated that he had lately detected the existence of an Entozoon in the superficial part of the extensor mus-

cles of the thigh of a hog. The Entozoon is a minute, coiled worm, contained in a cyst. The cyst are numerous, white oval in shape, of a gritty nature, and between the 30th and 40th of an inch in length.

The Entozoon he supposes to be the Trichina spiralis, heretofore considered as peculiar to the human species. He could perceive no distinction between it and the specimens of T. spiralis which he had met with in several human subjects in the dissecting rooms, where it had also been observed by others, since the attention of the scientific public had been directed to it by Mr. Hilton and Prof. Owen.

Dr. Leidy also exhibited a singular knotted mass of living Gordii, or hair worms, with numerous long strings of ova attacked, which had been taken a few days since from one of the hydrants of this city.

Stated Meeting, October 13, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Numerous specimens of minute recent and fossil Shells from the shore of Seneca Lake, N. Y. Presented by Judge Tremper.

Native Copper from the Bay of Fundy. From Professor Johnson.

A large slab of Sandstone, from the Portland Quarries, near Middletown, Connecticut, containing numerous marks of Ornithoidichnites. Presented by Messrs. C. P. Wickersham, and L. F. Jones, of Chester County, Pennsylvania.

DONATIONS TO LIBRARY.

Continuazione delle osservzioni nell' anno 1841, sulle larve di Scolia flavifrons. Da Carlo Passerini. Firenze 1841. 4to. From the Anthor.

Professor Johnson read an extract of a letter from Judge Tremper, in continuation of his observations on the temperature and evaporation of Seneca Lake; also some remarks on the increased rapidity of evaporation from the earth, when the herbage is closely cropped, as in grazing and pasture fields, and the causes thereof.

Dr. Dickeson stated, that having noticed some tracks resembling Ornithichnites, which were produced by the Alligator, he was induced to cause some tracks to be made in clay by that animal, several of which impressions he exhibited. He also mentioned that tracks of other animals had been repeatedly noticed by him, which he thought closely resembled the so-called bird tracks of the sandstone slab this evening presented to the Society.

Dr. Dickeson also made some interesting observations in relation to the habits of the Alligator.

Professor Johnson offered some remarks on Drift:—He remarked that in the vicinity of St. John's, N. B., he had met with some well marked examples of diluvial action, as evinced by scratches on the rocks at great depth. In some cases the grooves were to be found well marked on the side of the rock, while on the other no such action was manifest; but boulders not in situ were deposited there, as if from the action of a current in a direction from the grooved to the unaffected side of the rock. These boulders also exhibited grooves on their surface.

Stated Meeting, October 20, 1846.

VICE PRESIDENT WETHERILL in the Chair.

DONATIONS TO MUSEUM.

Dr. Morton deposited six embalmed heads of ancient Egyptians, presented to him by A. C. Harris, Esq.

Dr. Dickeson deposited a very extensive collection of specimens in fossil zoology, comparative anatomy, Indian relics, &c., obtained from the Natchez bluffs, the southern lakes and rivers, the aboriginal mounds, &c.

Mr. Gambel read a continuation of his 'Remarks on the Birds of Upper California,' which was referred to Messrs. Cassin, Townsend, and Woodhouse.

On motion of Dr. Morton, the Curators were authorized to receive on deposit, and to furnish accommodations in the Hall, for the large and interesting collections of Dr. M. W. Dickeson, deposited on this evening.

Meeting for Business, October 27, 1846.

VICE PRESIDENT MORTON in the Chair.

The committee on Mr. Gambel's paper read at last meeting, reported in favor of publication.

Remarks on the Birds observed in Upper California.

BY WILLIAM GAMBEL.

[Continued from page 48, vol. iii.]

PASSERES.

HIRUNDO *thallassina*, Swains. Violet-green Swallow.

This beautiful species I fonnd passing to the northward through California, in the spring.

HIRUNDO *fulva*, Vieill. Republican Swallow.

This is the most abundant swallow on our western coast, and arrives in California about the latter part of February or beginning of March. They immediately resort to the neighborhood of the towns, missions and farm-houses, and soon commence repairing their old retort-shaped nests, with which sheltered walls, the eves, and even window frames of the houses, are sometimes nearly covered. The nest is also frequently made on the trunks of large trees in the woods. They are very loath to quit their old nesting places. and will persist in building them up, however often they may be destroyed either by the rain or the inhabitants.

CHELIDON *bicolor*, Vieill. White-bellied Swallow.

This is also a common species, and a few appear to remain all winter, but the greater part arrive about the latter part of February. At Santa Barbara,

I found their nests, as usual, in the knot holes of the evergreen oaks in April.

CORYLE *riparia*, Linn. Bank Swallow.

Common; burrowing their nests in the sandy banks of small streams and creeks, which have worn deep ravines.

I also observed another swallow, not far from Monterey, in August, with a deeply forked tail, like our barn swallow, but apparently differently marked.

CERYLE *alcyon*, Linn. Kingfisher.

Common along the whole of the western coast. In California it is never observed to frequent the inland streams and creeks, being exclusively found along the rocky shores and islands.

CALLIPHLOX *rufa*, Gmel. Rufous Humming Bird.

This beautiful little flame bearer is not unfrequent throughout California.

CALLIPHLOX *anna*, Less. Anna Humming Bird.
Trochilus icterocephalus. Nutt. Man. Orn. vol. 1, 2d Ed. p. 712.

A very abundant and interesting species, numbers passing the winter in California; at such times inhabiting sheltered hill sides and plains, where at all seasons a few bushy plants are in flower, and afford it a scanty subsistence. They appear, however, in greater numbers about the latter part of February and during the month of March; the country is soon carpeted with flowers, and the Anna humming bird, revelling among their sweets, commences the duty of rearing its young. About the Pueblo, the vineyards and gardens are its favourite resort, forming its delicate downy nest in a small flowering bush, or some concealed spot about the fence. In April and May these may be found in almost every garden.

In other parts it attaches its nest almost exclusively to a low, horizontal branch of the evergreen oak, (Quercus agrifolia) so common throughout the country; the nest is small, being about an inch in depth and one and a quarter in diameter; it is not very thick, and is formed in the most delicate manner of pappus and down of various plants, held together and matted into a soft felt with spider's webs, which latter I have frequently observed them collecting for the purpose in the spring along hedges and fence rows, and at first supposed they were only searching them for gnats and small insects which might be entangled, but in a nest which I now have the base is formed of a few dried male aments of the oak, and which with the adjoining felt-like matting of pappus, is agglutinated and bound around the twig with a thick layer of spider's web. The eggs, as usual, are two, white and elliptical. The note resembles that of the Rufous humming bird, and is a slender *chep*, frequently repeated, but during the breeding season they are very pugnacious, and the little combatants dart through the trees, like meteors, uttering a loud and repeated twittering scold. It has the same habit also,

that has been remarked in the rufous humming bird, that of ascending in clear weather to a considerable height in the air, and then descending with great rapidity, uttering at the same time a peculiar note.

Nuttall, who brought this species from California, did not procure the male, but saw it frequently, and supposed it to have a yellow spot on the crown. I discovered that that which deceived him in this respect was the glutinous pollen of a tubular flower upon which it feeds, adhering to the rigid feathers of the crown, and making it look as if it really had a yellow head. I have also seen the bill for half its length covered in the same manner.

SITTA *carolinensis*, Briss. Carolina Nuthatch.

This species is common in the pines of the Rocky Mountains, and also in the wooded regions of the western coast.

SITTA *canadensis*, Linn. Canada Nuthatch.

I found this little wanderer very abundant in the mountains of the interior of California in October, roving in company with busy flocks of the *Parus montanus* nobis.

SITTA *pygmæa*, Vigors. Pigmy Nuthatch.

Extremely abundant in winter in Upper California, sometimes almost covering the trunks and branches of the pine trees, through which they exclusively forage. Around Monterey, particularly, the trees at times are alive with the noisy little creatures, incessantly uttering their monotonous querulous notes as they run around the branches. The note is generally a repeated whistling, *wit, wit*, which, when one commences, the rest join in; they also utter a whistling trill, at the same time industriously searching the tree throughout, and only leaving it when every crack has been examined for the concealed insect fare.

HARPES *rediviva*, Nobis, Proceed. Acad. Nat. Sc. vol. 2, p. 264.

Promerops de la Californie Septentrionale, La Perouse. Atlas to voyages, pl. 47.

This very remarkable bird was first noticed by La Perouse, who figured it in the atlas to his voyages, and subsequently by other writers when treating of the Tenuirostres, on his authority, as a Promerops.

On comparison, it will be found more properly to belong to the great family Certhidæ, and is allied to the oven birds of S. America, (Furnarius) both in general appearance, and as far as I can gather, in habits also, but the bill bears a greater resemblance to some of the large wren-like birds (Thryothorus ?) of tropical America.

It does not stand alone in our country; I have lately been shown by Mr Audubon a specimen received from near Galveston, Texas, which he supposed to be the bird I had described, but upon comparison, it proved to be a distinct species with the bill more curving at the tip, and not so much flattened, of which no doubt a description will soon be published.

TROGLODYTES *Bewickii*, Aud. Bewick's Wren.

Common, keeping in low bushes and piles of brush, as well as about old dead trees and logs, over and around which it flits with the greatest activity, uttering, when approached, the usual grating scold of the wrens.

TROGLODYTES *palustris*, Wils. Marsh Wren.

I found this species in small reedy marshes in the Rocky Mountains of the interior, in October.

TROGLODYTES *sylvestris*, Nobis. Audubon's Wood Wren.

T. Americana, Aud. Orn. Biog., vol. 2, p. 452, pl. 179.

A summer resident among the evergreen oaks of California, in which it sings and breeds.

I have changed the name of this species from that given by its discoverer, because that a *Troglodytes Americanus*, from Cayenne, was described by Cuvier, in the Gal. du Paris. See Lesson's Traité dè Ornithologie, p. 400.

SIAL, *artica*, Swains. Artic Blue bird.

This beautiful azure songster is common throughout the northern provinces of Mexico. In the neighborhood of Santa Fè it is abundant, keeping about the houses and gardens where they breed, sometimes forming its nest in boxes which are stuck up for the purpose by the inhabitants. In the ranges of the Rocky Mountains, as far as California, we frequently found it, and always associated with the *S. Mexicana*, both at this season occasionally uttering their cheerful song to remind us of home.

SIALIA *Mexicana*, Swains. Western Blue bird.

S. occidentalis, Townsend, Aud.

This species is found throughout the Rocky Mountains, in company with the former, and in California is by far the most abundant species. In April and May, I found it breeding in the knot holes of the evergreen oaks. During winter they assemble in small flocks, and frequent the weedy plains and valleys of the mountains.

TURDUS *migratorius*, Linn. American Robin.

We found the Robin scatteringly throughout the Rocky Mountains, and a few are found at all seasons, in California.

TURDUS *nævius*, Gmel. Varied Thrush.

I have only observed this beautiful species to pass through California during the spring and autumn, in silent flocks.

TURDUS *minor* Gmel. Hermit Thrush.

T. nanus. Dwarf Thrush. Aud. Orn. Biog. 5, p. 204, pl. 419; Nutt. Man. p. 396.

T. solitarius. Auc.

The confusion hitherto existing in the description of the nearly allied group of Thrushes to which this belongs, has rendered the determination of the species exceedingly difficult, and at best but a matter of uncertainty,

The Dwarf Thrush of Audubon was founded upon specimens from the Atlantic States, and no doubt upon the true Hermit Thrush.

Mr. Pickering, and also Mr. Nuttall, must have had the *T. olivaceus*, since characterized by Drs. Brewer and Giraud before them, and mistaking it for the Hermit Thrush, when they distinguished the *T. nanus* as a species.

An examination of specimens of the *T. minor* from the Atlantic and Pacific coasts of North America shows no difference in any way, except that perhaps the western one is somewhat smaller, yet the difference is scarcely appreciable. From the measurement of many western specimens, I found its length to be 6¼ inches, and the extent of wings 10½ inches; the tail, wings, and relative length of quills the same as in our eastern one, and in fact, I think it can in no possible way be distinguished as specifically different. A European specimenalso of the same species, from the Rivoli collection, now in the Academy, is the same in every respect as our own.

That which is most remarkable in the character of this delicate and gentle bird, is its solitary and retiring disposition; avoiding the ruthless gaze of man, it glides into the deepest shade of the forest or underwood, and is but seldom seen, except unconsciously, when earnestly engaged, scratching upon the ground in search of food; or else, it be discovered while perched upon a low leafy branch or twig, when it allows a very near approach, as if depending for concealment and security upon the thickness of the foliage and bushes around.

In the wooded regions of the Rocky mountains, I found it not uncommon, always keeping on, or very near the ground. It is very frequent throughout California, and in the spring may be found in the retired hedges of the vineyards, where very possibly it breeds.

MIMUS *montanus*, Towns. Mountain Mocking bird.

We occasionally met with individuals of this mocking bird along the bushy banks of streams in the interior, during September and October, then silent.

MIMUS *polyglottis*, Linn. Common Mocking bird.

I observed a few of these in sheltered ravines during the winter, and in May, around Santa Barbara, the woods were ringing with their inimitable song, at this time, mimicking Bullock's oriole, and the western Blue bird.

CINCLUS *Americanus*, Swains. American Dipper.

A few of these are found along the solitary streams of the interior.

ANTHUS *Ludovicianus*, Licht. American Titlark.

This species appears to be one of the most extensively distributed of N. American birds, being found throughout the length and breadth of our country. In the desert regions, between Santa Fé and California, it was one of the few birds we met with; then going in small flocks, either on the plains among arid Artemesia and sage bushes, or along the courses of rivers and small streams. In California it is abundant, particularly in winter, when

it frequents the seashore to pick up insects, and perhaps small shells, from the seaweed which is cast ashore.

Regulus *calendula*. Ruby-crowned Kinglet.

This species, like many of the most diminutive birds, is found distributed over the whole extent of our vast continent, thereby showing its connection as a single zoological centre or province of creation.

In the highest ranges of the Roeky mountains, we met with the Ruby-crowned wren in large flocks, roaming in company with the *Parus minimus*, Towns., also in large flocks, enlivening those dreary solitudes with their restless activity and twittering while in search of food. Throughout California it is equally abundant; ever varying habits and note making it but too often the victim of the gun in supposition of being something else.

The Report of the Corresponding Secretary was read and adopted.

By permission of the Society, a paper was read, entitled, 'On several new genera and species of Insects, by S. S. Haldeman,' which was referred to a committee, consisting of Messrs. Leidy, Hallowell, and Bridges.

ELECTION.

Ambrose W. Thomson, Esq., and Dr. M. W. Dickeson, of Philadelphia, were elected Members:

And J. B. S. Johnson, M. D., of Boston, and C. B. Adams, Esp., of Vermont, were elected Correspondents.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. NOV. AND DEC., 1846. No. 6.

Stated Meeting, November 3, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A large collection of fossil bones of a young Mastodon, taken from the farm of Mr. William Pancoast, near Plattsburg, New Jersey. Also a human cranium and numerous fragments of other human bones, from the site of a supposed Indian cemetery, about 10 miles east of Burlington in that State. Presented by Mr. Pancoast, through Dr. Hallowell.

DONATIONS TO LIBRARY.

Second Annual Report of the Geology of Vermont. By C. B. Adams. Burlington, Vt., 1846. From the Author.

Address to the British Association for the advancement of Science. By Sir Roderick Impey Murchison. London, 1846. From M. Agassiz.

Elogé de Louis Levin Jacobson. Discours prononcé in Danois á l'Academie royale des Sciences de Copenhague; Séance du 1^er^ Mars. 1844; par D. F. Eschricht, M. D. Copenhague, 1844. From the Author, through Dr. Morton.

De organis quæ respiratione et nutrione fœtus mammalium inserviunt. Prolusia academica quam scripsit D. F. Eschricht, M. D. Hafniæ, 1837. From the same.

Om undersögelsen af de Nordiske Hvaler af D. F. Eschrict, M. D. Kjöbenhavn. From the same.

Undersögelsen over Hvaldyrene af D. F. Eshricht:

Förste afhandling—Bemærkninger over Cetologiens tidligere og Nærværende skjebne.

Anden afhandling—Anatomisk Beskrivelse af de ydre fosterformer hos to Nordiske Fiuhval-arter, med Anvendelse paa Physiologien og Zoologien.

Tredie afhandling—Om fosterformene Bardihvalernes ernœrings-og Forplantelsesredskaber.

Fjerde afhandling—Om Næbhvalen. From the same.

Anatomische unter suchungen über de Clione Borealis. H^m. Carl Holböll und D. F. Eschrict, M. D. Kopenhagen, 1838. From the same.

The North American Sylva. By Michaux and Nuttall. Vol. I. Philadelphia, 1842. In exchange.

A letter was read from Mr. Edward Wilson, dated Leydstip House, near Tenby, Pembrokeshire, England, 22d Sept., 1846, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Morton read a portion of a paper intended for publication in the American Journal of Science, on Hybridity in animals considered in reference to the question of the Unity of the Human Species.

Stated Meeting, November 10, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Mr. Lewis Germain, of Burlington, N. J., presented an additional number of fossils from the marl strata near that place. Also the tooth of a Sphyræna from Mullica Hill, New Jersey.

Original specimen of Rafinesque's Mazama salinaria. Presented by Mr. Haldeman. [Mr. H. stated that this was in reality merely a single prong of the horn of a Cervus, the interior being mineralized.

Two fine specimens, in skin, of Falco leucocephalus. From Dr. Heermann.

Dr. Dickeson presented twenty-six species of fossil Helix from the Drift west of Natchez; and also deposited six human crania, four of which are from the mounds near that place.

DONATIONS TO LIBRARY.

Astronomical Observations made at the Naval Observatory, Washington, under orders of the Secretary of the Navy, dated Aug., 1838. By Lieutenant J. M. Gilliss, U. S. N. Washington, 1846. From Lieut. Gilliss.

Proceedings of the American Philosophical Society. Vol. 4, No. 35. Jan. to June, 1846. From the Society.

The American Journal of Science and Arts. New series. Vol. 2, No. 6. From the Editors.

Expedition shells, described for the work of the U. S. Exploring Expedition. By Aug. A. Gould, M. D. Boston, 1846. From the Author.

On the Volcanoes of the Moon. By James D. Dana. New Haven, 1846. From the Author.

Medical Examiner, Vol. 4, No. 6, containing an article by Dr. E. Hallowell, on the habits and post mortem appearances of a Chimpanzee (Simia Troglodytes) which died in Philadelphia. From Dr. Hallowell.

Letters were read,

From Mr. C. B. Adams, dated Middlebury, Vermont, Nov. 5, 1846, acknowledging the receipt of his notice of election as a Correspondent.

And from Mr. C. P. Wickersham, dated Kennett Square, Chester Co., Pennsylvania, Oct. 26, 1846, addressed to the Corresponding Secretary, containing the following, in refer-

ence to his recent donation to the Academy, of a fine specimen of fossil tracks in the red sandstone of the Connecticut Valley.

"It may not be improper for me to add, that we were shown on a large block of stone, by a gentleman connected with the quarries, tracks resembling those of some of our land animals, perhaps those of a mink in size. They were very distinct, though rather lightly impressed, there being, I believe, two rows across the stone. And that early last spring I found among some fragments, thrown out in consequence of sinking a well deeper, in Rockyhill, Ct., a specimen of fossil shell, or something having a close resemblance to one. One side of it is very perfect, the other is embedded in the stone, and is probably a small bi-valve, nearly an inch in length, and near three quarters of an inch in breadth. I sent it to Professor Silliman, with permission to deposit it in the cabinet of Yale College. If a shell, it appears to be the first we have any account of as having been found in the sandstone of the Connecticut Valley.

The suggestion that the fossil tracks may probably be those of some Sauroid reptile, is doubtless worthy of attention. But from the few observations I made during my four years' residence at the University of that place, I am inclined to the opinion that they can never be attributed to any other than biped animals of some type or other. Where opportunity is afforded for the inspection of a large number of successive tracks, they are found to be at regular intervals, along a line in the direction of the motion of the centre of gravity of the animals; and the line drawn through the heel and centre toe makes but a small deflexion from the line of motion of the animal. In all the tracks which I have carfully noticed, each alternate track exactly resembles that which precedes it, and in some cases where there is a slight peculiarity in one of the feet, this fact is very apparent. The heel of the track does not exhibit any sign of the impression of a portion of the leg adjoining the foot, not even where the animal has passed up or down a small declivity, as was the case with some tracks on that portion of the specimen in your museum, destroyed by the workmen in our absence. If uric acid is found only in the excrements of birds,

the analysis of some of the coprolites found in the valley is pretty conclusive evidence that birds did exist there at the time the sandstone was forming.

Now if we take the Crocodile, Alligator, or any of the Saurian type with which we are acquainted, we should expect to see their tracks made at irregular intervals, and at some distance on either side of a plane passing perpendicularly through the centre of gravity of the animal in the direction of its motion, especially when we consider the width the feet are separated, and the clumsy manner in which these animals must move. These animals would, in all probability, leave the print of a portion of the leg next the foot, and which, if I mistake not, is the case with the fossil tracks acknowledged to be of the Sauroid character, found in the same valley."

Dr. Morton concluded the reading of his memoirs on "Hybridity in animals considered in reference to the question of the Unity of the Human Species," and after some general remarks, submitted the following conclusions:

1. A latent power of hybridity exists in many animals in the wild state, in which state, also, hybrids are sometimes produced.

2. Hybridity takes place not only among different species, but also among different genera; and the cross-breeds have been prolific in both cases.

3. Domestication does not cause this faculty, but merely evolves it.

4. The capacity for fertile hybridity, *cæteris paribus*, exists in animals in proportion to their aptitude for domesticity and cultivation.

5. Since various species of animals are capable of producing a fertile hybrid offspring, hybridity ceases to be a test of specific affiliation.

6. Consequently, the mere fact that the several races of mankind produce, with each other, a more or less fertile progeny, constitutes, in itself, no proof of the unity of the human species.

Stated Meeting, Nov. 17, 1846.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Casts of Charcharodon Mortoni, Gibbes, C. rectidens, Agassiz, and C. megalodon, Ag., from the Eocene of South Carolina. From Dr. R. W. Gibbes, of S. Carolina.

Tooth of a Mosasaurus, from New Jersey. From Dr. Hallowell.

Specimen, in spirits, of Mantis religiosa, from Caraccas. From Dr. Goodall, through Dr. Hallowell.

A series of Iron ores, from Nova Scotia. From Prof. Johnson.

DONATIONS TO LIBRARY.

Memoir on the Megatherium and other extinct gigantic quadrupeds of the coast of Georgia; with observations on its geological features. By Wm. B. Hodgson. New York, 1846. From the Author.

Ancient Egypt, her Monuments, History and Archæology, and other subjects connected with Hieroglyphical Literature. By Geo. R. Gliddon. 10th edition, with an Appendix. From the Author.

A monograph of the fresh-water univalve Mollusca of the United States. By S. S. Haldeman. Nos. 7 and 8. From the Author.

Dr. A. L. Elwyn presented the following:

Some account of the Siren lacertina and other species of the same genus of amphibious animals. (In a letter from Prof. Barton, of Philadelphia, to John Gottlob Schneider, of Saxony.) Philadelphia, 1821.

Ueber die Bartmündigen enzianarten, (Gentianæ fauce barbata) Von Dr. Nees von Esenbeck.

Synopsis Specierum generis Asterum per baccarum, &c.— Auctore Chr. Godofred Nees ab Esenback, M. D. Erlangæ, 1818.

An account of a new method of making anatomical preparations. By Joseph Swain. London, 1820.

Facts and observations on liver complaints. By John Faithborn, M. D. Philadelphia, 1822.

Mr. Cassin read a "Note on an instinct supposed to be possessed by the Herons, especially the genus Ardea, L.," which was referred to Messrs. Phillips, Harris and Gambel.

Prof. Johnson announced to the Academy the decease of our late fellow member, Isaiah Lukens, Esq. After some very appropriate remarks on the character, high qualities and scientific attainments of the deceased, the following resolutions were submitted by him:

Resolved, That this Academy has heard with deep regret the loss it has sustained in the demise of our late able and excellent associate, Isaiah Lukens, one of the earliest members of this institution.

Resolved, That through the whole period of its existence, this Academy has felt the beneficial influence of the personal worth of our late coadjutor, and of his firm, unwavering support of the interests of this institution; of his sound and discriminating judgment in various departments of science; of his constant devotion to knowledge and the useful arts, and of his sincere uncompromising love of truth.

Resolved, That the members of this Academy deeply sympathize with the relatives and friends of the deceased in the bereavement they have sustained by the death of our lamented associate; that they recall with a melancholy pleasure the many happy and profitable hours which they have passed in his society; that they dwell with unmixed satisfaction on the memory of his free and generous spirit, ever ready to communicate of his abundant stores of useful knowledge, ever wise and liberal in his estimate of the labors and characters of others, ever modest and reserved in what concerned his own peculiar and distinguished merits.

Resolved, That we cherish a deep sense of the value of that combination of intelligence with useful labor for which our

departed friend was so signally characterized, and cannot withhold the tribute of our admiration from that devotion to duty which found him, as his lamp of life was drawing to its last faint glimmer, still at his post, intent on the fulfilment of a professional service, while his dying breath expressed his gratitude for the privilege of having lived at a period when so much of truth and improvement had been developed in the world, and that in his day and generation he had been permitted to share in the many and varied enjoyments which science and ingenuity had diffused.

Resolved, That a member of the Academy be appointed to prepare a suitable memoir of our departed fellow member.

Resolved, That a copy of the foregoing resolutions be communicated to the family of the deceased, with the heartfelt condolence of the Academy on this mournful occasion.

The resolutions were unanimously adopted, and Prof. Johnson appointed to prepare the memoir.

Meeting for Business, November 24, 1846.

VICE PRESIDENT WETHERILL in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Committee on the following paper by Mr. Haldeman, reported in favor of publication.

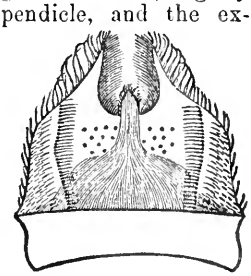
On several New Genera and Species of Insects.

By S. S. HALDEMAN.

Whilst engaged in making dissections of the mouth of several species of COPRIS for the purpose of learning their true generic character, I was struck with the dissimilarity existing in the labrum. I consider the European COPRIS *lunaris* as the type of the genus, because European naturalists have usually constructed the genera, and the type should be a species whose habits are well known. To prevent confusion, the author who subdivides

an old genus, should generally be allowed to decide what portion is to retain the old generic name. The rule which adopts as the type the species which stands first in an author's work, is not applicable in all cases, because these were not always considered the type of the genus. An author might name a genus GEOTRUPES from the known habits of a European species, and commence his list with a large exotic species having entirely different habits, and not really congeneric with it. In such a case it would be obviously improper to consider the latter as the type of the genus GEOTRUPES. Moreover, instead of being the type, the initial species may have been thus placed from its resemblance to the preceding genus; and it is obvious that the animal which most nearly approaches another genus, cannot be the type of that to which it really belongs.

1. BRACHYCOPRIS. The type of this new genus is the well known COPRIS *carolina*. In COPRIS the labrum is subquadrate, rather widest anteriorly; the anterior margin transverse, slightly emarginate, with a medial projecting appendicle, and the exterior margins rounded. In BRACHICOPRIS the labrum is distantly triangular, widest at base, and much narrowed anteriorly, where it is deeply emarginate, leaving a lateral aculeate process, the appendicle projecting from the base of the emargination, as represented in the figure. The basal articulation of the labial palpi is proportionally much larger than in Copris. This body is contracted in length; and in the type, the elytra are sulcate and the tibiæ unarmed.



COPRIS *molossus* would upon first view be placed nearer to C. *carolina* than to C. *lunaris*, or the American C. *anaglypticus*, Say. Its labrum, however, associates it with these. Mr. Hope has made it the type of his genus CATHARSIUS. It has the labrum more regular, more nearly quadrate, and the anterior half only of the medial solid portion is covered with hair, the posterior portion presenting a smooth furrow with a well defined margin.

2. PRIONUS *fissicornis*. General characters as in P. *imbricornis*. Blackish brown, antennæ thick, imbricate, reaching the middle of the elytra, 25 articulate, canaliculate beneath by means of a deep emargination in the articulations, which are somewhat v-shaped when detached, the posterior branch the longer, with its apex incurved: prothorax with three lateral teeth. 11 lines long.

For this interesting species I am indebted to my friend Dr. J. L. Le Conte, who found it near the Rocky mountains. It is re-

markable for the emargination and number of the articulations of the antennæ, which are more numerous than in any native species hitherto described. The globular base of the second is not enumerated; twenty-four are imbricate, and the final one has a small additional process rising out of its concavity. In P. *imbricornis* the antennæ of the male have nineteen, and of the female, seventeen articulations.

3. SPHENOSTETHUS. Allied to PRIONUS. Head small, narrower than the thorax, concave above; eyes slightly emarginate anteriorly; antennæ less than half the entire length, slender and compressed, second articulation longest, subsequent ones gradually decreasing, with a tendency to serration beneath; mandibles robust, toothed; palpi with the terminal articulation triangular: prothorax transverse, narrower than the elytra, contracted anteriorly, concave posteriorly, the external margins unarmed: pro and mesosternum conjointly carinate, in close contact, the latter entering an acute emargination of the former: scutel triangular: elytra separately rounded at base, moderately tapering and dehiscent; sides incurved, apex minutely serrate: feet slender.

4. S. *serripennis*. Shining black, punctate scabrous above; front with a wide depression having an impressed medial line; pronotum with two approximate impressed punctures upon each side arranged diagonally, medial line visibly impressed posteriorly; external margins convex, emarginate at the posterior angles; posterior margin convex in the centre and concave laterally: elytra meeting the pronotum in close contact, a shallow scabrous impression at the base; apex finely serrate. Length $11\frac{1}{2}$; prothorax 2; elytra 8; width at base 4 lines.

A single specimen taken in south-eastern Pennsylvania. Another seen in Le Conte's cabinet, probably taken in New York. Probably allied to PRIONUS *muticus*, Fabr. ii. 265. It is remarkable for the close contact of the prothorax with the elytra and scutel above and the mesosternum below.

5. MOLORCHUS *tenuipes*. Black, frontal line deeply impressed: protborax cylindric: elytra dark fuscous, obsoletely fulvous at base: medial and posterior feet very slender. 3 lines long.

The larva inhabits detached branches of the genus Carya, (hickory), the perfect insect appearing in May in S. E. Pennsylvania.

6. ENOPLIUM *venustum*. Dark brown, with minute fulvous hairs: middle of the elytra with a broad irregular transverse silvery band. $4\frac{1}{2}$ lines long. South-eastern Pennsylvania.

Base and half the terminal articulation of the antennæ, palpi, anterior tarsi, and base of the femora, pale yellow: pronotum tuberculate: elytra with numerous dilated impressed punctures: apex pale yellowish brown, and with the base marked with a few small spots of yellow; the central white portion has several

spots of black, and is bounded posteriorly by a black zigzag line, the black enlarging towards the suture; medial and posterior feet pale yellow; the femora with the middle and the tibiæ with the terminal half, brown. Apparently allied to E. *bimaculatum*, Mels., Proceed. Acad. 2, 307. According to Dr. Le Conte this is the *venustum* of Dejean's Catalogue.

7. HETERODROMIA [Fam. Donaciadæ.] Body slender, punctate-scabrous: head advanced; eyes rather prominent, reticulate; antennæ 11-articulate, slender, longer than the head and prothorax, first articulation longer than the second and third, last fusiform: mandibles strong, short, incurved: palpi 3-articulate, final articulation subsecuriform, prothorax subelongate, narrowed behind: elytra subparallel, narrowing towards the apex, wider than the prothorax, conjointly rounded at tip: feet slender, subelongate, posterior femora incrassate.

8. H. *velox*. Thickly punctured, hirsute, pale yellow; head, anterior margin of the prothorax, and seventh, (at the apex) eighth, ninth and tenth articulations of the antennæ, black: elytra lineate punctate, with a tendency to fuscous behind the middle: abdomen obscure fuscous, feet pale. 4½ millim. long.

Var. a. Having three transverse fuscous dots on the pronotum, and a large sutural fuscous spot at the base of the elytra.

Found in May, upon grass and under stones and rubbish, in Pennsylvania, Carolina, Alabama and Ohio. It runs with great rapidity, and resembles some of the Carabidæ. The species described might at first view be taken for the DEMETRIAS *atricapillus*, Linn.

9. TROGUS *nubilipennis*. Fulvous; antennæ, eyes, vertex, and five terminal segments of the abdomen, with half the preceding one, black: wings fuliginous, mottled with a few spots of yellow in the middle and at the base: mesosternum tipped with black: abdomen shining black beneath: inside of the base of the femora and trochanters blackish: tibiæ, tarsi, front and base of the antennæ beneath, yellow. 11 lines long, expanse 19.

About a year ago I sent a description and specimen abroad, which seems to differ from the present one, as the segment of the abdomen upon which the two colors meet is described with "maculâ longitudinali nigrâ in medio, et nigro-marginato;" and the wings "fuligine flavoque nubilatis." There are a few minute white specks upon the alar nervures; one on the *medial*, a little within the small intercubital cell; one exterior to the same cell; and two on the interdiscoidal nervure running from it.

10. IBALIA *maculipennis* ♀. Yellow; meso-and metathorax black, except the scutel and two longitudinal bands above, and a spot beneath the wings: eyes, apex of the antennæ, base of the coxæ, and middle of the femora, (the greater part of the posterior ones)

black: posterior tibiæ blackish towards the apex: wings yellow, apex and a central spot fuliginous. 7 lines long, 11 expanse. South eastern Pennsylvania, in May and June.

The following amendments to the By-Laws were adopted:

Chap. V. Art. VI., to commence thus: "The duty of the Librarian shall be to attend daily at the Hall from 11 o'clock, A. M., to $2\frac{1}{2}$, P. M., &c."

And to add to the same Chapter:

Art. VIII. The Chairman of the Curators shall attend daily at the Hall from $2\frac{1}{2}$, P. M. until sunset, to perform the duties of his office.

The following preamble and resolutions, offered by Dr. Morton, were adopted:

Whereas, Dr. Thomas B. Wilson has made this institution the depository of his magnificent collection of Birds, which, from the number, beauty and variety of its specimens, already ranks as the fourth extant; and

Whereas, Dr. Wilson is assiduously extending and perfecting this collection for the interests of science and of this institution; and

Whereas, The collection of the Academy is comparatively small and incomplete, and must continue to be so, inasmuch as the former incentive to increase it no longer exists, and also since two collections in Ornithology are unnecessary and inexpedient;

Therefore, *Resolved*, That the collection of birds now belonging to the Academy, be merged in the *Wilson Collection*.

Resolved, That the galleries now occupied by the Ornithological collection of the Academy, with such of the cases as may be required, be appropriated to the use of the joint collection.

Resolved, That the Zoological Committee be authorized and instructed to carry into effect the foregoing resolutions.

ELECTION.

Mr. John Lambert, of Philadelphia, was elected a Member, and the following gentlemen were elected Correspondents of the Academy:

J. W. Dawson, Esq., of Pictou, Nova Scotia.
W. E. Logan, Esq., Geologist of Canada.
Richard Brown, Esq., of Sydney, Cape Breton.
James Robb, Esq., of Frederickton, New Brunswick.
Andreas Retzius, M. D., of Stockholm.

Stated Meeting, December 1, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Remarkably large and fine specimen of Sulphuret of Lead, or Galena, (weight exceeding 100 lbs.) crystallized in cubes from the mine of Mr. Sanders, near Galena, Illinois. Presented by Mr. Alex. C. Davis, of Galena, through Richard D. Wood, Esq., of Philadelphia.

Mounted specimen of Tyrannus verticalis, Say, from New Jersey. Presented by Mr. Edward Harris.

Scutella quinquefaria, from the Eocene of Georgia, and a number of Silurian fossils from Nova Scotia. From Prof. Johnson.

DONATIONS TO LIBRARY.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3, No. 1. From the Association.

Transactions of the Linnean Society of London. Vol. xx., Part 1. 4to. London, 1846.

Proceedings of the same; pp. 261 to 304.

List of the Society for 1846. From the Society.

Proceedings of the Zoological Society of London. Part xiii. 1845.

Report of the Council and Auditors of the same for 1846. From the Society.

Mr. Grant, of Philadelphia, read a paper containing observations on Hybridity in Animals, which was referred to a committee, consisting of Messrs. Cassin, Phillips and Morton.

Stated Meeting, Dec. 8, 1846.

Vice President Morton in the Chair.

A communication was read from the Essex Co. (Mass.) Natural History Society, dated Dec. 1, 1846, acknowledging the receipt of recent Nos. of the Society's Proceedings.

Dr. Hallowell read a description of the locality, near Plattsburg, New Jersey, whence the fossil bones of a young Mastodon, presented at a late meeting of the Society, had been obtained by himself and other members.

Dr. H. gave the following enumeration of the bones, for which the Academy is indebted to the liberality of Mr. William Pancoast, the proprietor of the farm on which they were found.

Eleven ribs nearly perfect, seven of which belong to the left side; one rib of same side much mutilated; two scapulæ imperfect; a humerus, two feet three inches long (French measure) with the head separated from it; three cervical vertebræ and six dorsal well preserved; one lumbar and four caudal vertebræ; two vertebral spinous processes; the ossa innominata, fractured, with the acetabula perfect, but the foramina thyroidea incomplete, and the ischia partly broken off; one patella; the head of the os femoris and upper portion of the shaft of the bone; a scaphoid and other small bones of the feet; with numerous undetermined fragments of bone. Besides these, there are two others, supposed to be the zygomatic processes of the temporal bones. The epiphyses are separated from the upper extremity of the os humeri and of the femur, which, with the size of the bones, indicate that they belonged to a young animal.

The following resolutions, adopted at a meeting of the Zoological Committee, were presented by the Chairman of the Committee:

Resolved, That in incorporating the Ornithological collection of the Academy with that of Dr. Wilson, the Zoological Committee will withdraw from exhibition such specimens, the property of the Academy, as shall be found duplicates in the joint collection.

Resolved, That the duplicates be deposited in the northeast basement room.

The resolutions were, on motion, approved.

Stated Meeting, Dec. 15, 1846.

Mr. Vaux in the Chair.

DONATIONS TO MUSEUM.

A number of fine fossils, from the Silurian rocks of Columbia Co., Pennsylvania. Presented by Mr. H. S. Stephens.

Prof. Johnson presented from Miss Morris, of Germantown, numerous specimens of Cicada septemdecim, some of them in the living state. They had been recently found in that vicinity, firmly attached by the proboscis to the roots of fruit trees which had been gradually decaying for several years.

DONATIONS TO LIBRARY.

Fourth Bulletin of the National Institute. Feb. 1845 to Nov. 1846. Washington, D. C., 1846. From the Institute.

The following very valuable works were deposited by Dr. Thomas B. Wilson:

Fauna Japonica; auctore Ph. Fr. von Siebold. 18 fasciculi. Aves, Mammalia, Pisces. Elaborantibus C. J. Temminck, et N. H. Schlegel. Folio.

Verhandelingen over de Naturlijke Geschiedenis der Ne-

derlandsche overzeesche Bezittengen door de leden der Natuurkundige commissie in Oost-Indië en Andere Schrijvers. Zoologie. 12 Nos. Folio.

Systematische Uebersicht der Vögel Nord-Ost Afrikas. Von Dr. Ed. Rüppell. 1 vol. 8vo. Frankfort Am. Main. 1845.

Neue Wirbelthiere zu der Fauna von Abyssinien gehörig entdeckt und beschrieben von Dr. Ed. Rüppell. 1 vol. 4to. Frankfort Am. Main, 1835–40.

The Genera of Birds. By Geo. Robert Gray, F. L. S. Illustrated with about 350 plates, by David Wm. Mitchell, B. A. F. L. S., &c. 28 parts, 4to.

Iconographie Ornithologique. Nouveau recueil général de planches peintes d'Oiseaux: par O. des Murs. 3 Livs. 4to.

The Viviparous Quadrupeds of North America. By John James Audubon, and the Rev. John Bachman, D. D Ninety-three plates. Elephant folio.

Dr. Leidy read a paper "On the situation of the olfactory sense in the terrestrial tribe of the gasteropodous mollusca," which was referred to Mr. Phillips, Mr. Haldeman, and Dr. Morton.

A letter was read from Dr. Zina Pitcher, dated Detroit, Michigan, Dec. 3, 1846, transmitting a Catalogue of Birds in the University of Michigan, and soliciting exchanges in several departments of Natural History.

The following remarks by Miss Morris, communicated through Professor Johnson, fully explain the circumstances which led to, and accompanied the discovery of the larvæ of *Cicada septendecim* preying on the roots of fruit trees:

I have, for a number of years, believed that the failure of fruit on trees over twenty years old, was mainly owing to the ravages of the larvæ of the *Cicada septendecim*, though Entomologists have heretofore considered them harmless, or nearly so, believing that the principal injury caused by them was received on the branches of the trees when depositing their eggs. But from the fact of their burrowing into the earth the moment of their escape

from the eggs, and their living, as all acknowledge, on the sap of the roots of plants, I was led to think that the constant drain of sap required to nourish so many thousands of grubs, of from a quarter of an inch to an inch in length, must be more than a tree could live through, and yield good fruit. I was confirmed in this opinion by an experiment made by J. B. W., New York, and published in the November number of the Horticulturist, page 227. The method prescribed to renovate an outcast, is to dig a trench four feet wide and twenty inches deep, around the tree, leaving a ball of earth six feet in diameter, and then to fill the trench with rich earth and compost. The author states that the experiment succeeded, and that in three years the tree was in a flourishing condition, and yielded fine fruit. The writer attributes the change to the new and rich soil with which he supplied the tree. I argue, that on cutting off the larvæ of the *Cicada*, which he did when he cut off so large a portion of the roots, he removed the real disease, and the tree was then in a condition to take advantage of the congenial soil placed around it; and new life was given to roots and branches.

Under this impression, I superintended a similar experiment on a pear tree that had been declining for years, without any apparent cause, and agreeably to my expectations, I found the larvæ of the *Cicada* in countless numbers clinging to the roots of the tree, with their suckers piercing the bark, and so deep and firmly placed, that they remained hanging for half an hour after being removed from the earth. From a root a yard long, and about an inch in diameter, I gathered twenty-three larvæ; they were of various sizes, from a quarter of an inch to an inch in length. They were on all the roots that grew deeper than six inches below the surface. The roots were unhealthy, and bore the appearance of external injury from small punctures. On removing the outer coat of bark, this appearance increased, leaving no doubt as to the cause of the disease.

The larvæ were enclosed in a compact cell of earth, with no outlet except that in immediate contact with the root, and as there were no galleries or holes leading from these cells, I infer that the grubs never leave the roots they first fasten on; which may account for the great difference of size; the small ones being starved specimens of the same brood: though I am inclined to believe that there are two species, differing sufficiently in size to account for the discrepancy in the size of the larvæ now found. I noticed this difference in 1817, and again in 1834: the note of the smaller variety, or species, is much shriller than that of the larger, and will never be mistaken when noticed.

The Cicado is too well known to need a description here; I will therefore only notice its habits as they have fallen under my own observation, and make a few extracts from an article published in

the National Gazette, and written by my brother, Mr. Thomas W. Morris, in 1834.

The eggs require forty-two days to mature in the branches of the trees; they then burst the shell and appear, a minute but active fac simile of the parent in the larvæ state, except the absence of the wing cases; they require but a few moments to stretch their limbs and prepare for labor, before they unloose their hold on the twiggs on which they had been deposited, and fall to the ground, where they immediately disappear in search of food in the roots of the tree. If the eggs that are about to hatch be placed over a glass jar filled with earth, the young grubs will in a few hours after their escape from the eggs, be seen at the bottom of the jar endeavoring to force their way still deeper—when first hatched they are quite white, but soon change to yellowish brown. They exist in separate tribes, occupying different sections of country; making their appearance in different years, but invariably after the same interval of time. For a year or two before the arrival of the main body, a few scattered individuals are generally found.

Mr. Morris thus describes them, as noticed by him at various times and places:—

"In November, 1812, I found a large number of locust grubs under an old apple tree, between two and three feet below the surface, having every appearance of such as now issue from the ground, and nearly of the same size. On the 27th of June, 1815, I saw a portion of one of their countless tribes west of the Alleghany mountains, extending from the summit of the Chestnut ridge into the State of Ohio, beyond Steubenville; occupying every shrub and tree except the pines, and the walnut, hickory, and some of the same family. On my return in the latter end of the following month, not an individual of the myriads which had occupied that space was to be seen; the tops of the forests for upwards of a hundred miles appeared as if scorched by fire. In 1832, just seventeen years after, I noticed a newspaper paragraph, which stated that the locust had appeared in that neighborhood in large numbers.

The northern parts of Pennsylvania and New Jersey were visited by them in 1826, when I had another opportunity of seeing this extraordinary insect. On my way from Easton, through New Jersey to Milford in Pike county, Pennsylvania, I fell in with a very numerous body; how far they extended, I was unable to learn, but they did not disappear from my route until after passing through a large part of Pike county, a distance by the road, of more than sixty miles from the place where I saw them on the 23d of May. Trees and shrubs are necessary as places of deposit for their eggs; consequently, though numerous in the State House Square, none were to be found in Washington Square, which in 1817 was destitute of trees."

Stated Meeting, Dec. 22, 1846.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Very fine specimen of Nail-headed Calcareous spar, from Cumberland, England. Presented by Mr. George Thomson, of Liverpool, through Mr. Samuel Ashmead.

Dr. Morton deposited the following crania: Two natives of Madagascar, presented to him by Lt. Strain, U. S. N.; a Negro, from Dr. Hardy, of Asheville, S. C.; a Potawatomie, from Dr. Fussell; a Kanaka of the Sandwich Islands, from Lt. Strain, and an Australian Negro, from Dr. J. Wilton, of Gloucester, England.

Dr. Hallowell exhibited a living Chæmeleon, from Malaga, the property of Dr. C. W. Pennock.

DONATIONS TO LIBRARY.

Prodromo della Grande Anatomia; seconda opera postuma di Paolo Mascagni, &c. Firenze, 1819. Folio. From Dr. P. B. Goddard.

Chloris Boreali-Americana. Illustrations of new, rare, or otherwise interesting North American plants, selected chiefly from those recently brought into cultivation at the Botanic garden of Harvard University. By Asa Gray, M. D. Decade 1ª. 4to. Cambridge, 1846. From the Author.

Contributions to the Bryology and Hepaticology of North America. By Wm. S. Sullivant. Part 1. 4to. Cambridge, 1846. From the Author.

Report of the season of 1846, with a table showing the flowering of fruit trees, the first opening, full flowering and ending of each, from 1837 to 1846, inclusive, &c. By Joseph Barrat, M. D. Middleton, Ct. From the Author.

Annual Meeting, Dec. 29, 1846.

Vice President Wetherill in the Chair.

The Committee on the following communication by Dr. Leidy, reported in favor of publication.

On the situation of the Olfactory sense in the terrestrial tribe of the Gasteropodous Mollusca.

By Joseph Leidy, M. D.

While no observer of the habits of the terrestrial Gasteropoda doubts the existence of the sense of smell in them, but on the contrary, asserts positively that it does exist, the anatomist heretofore has not been able to point out its precise seat.

Swammerdam, in his Biblia Natura, speaks decidedly of the existence of this sense in the Helix pomatia, but offers no conjecture as to its situation. Blumenbach remarks, under the head of Vermes, "Several animals of this class appear to have the sense of smelling, as many land snails (Helix pomatia, &c.,)" and afterwards adds, "But the organ of this sense is hitherto unknown; perhaps it may be the stigma thoracicum." Cuvier in his Mémoir sur la Limace et le Colimaçon, after remarking the delicacy of this sense, thinks it probable it may reside "Dans la pean toute entière, qui a beaucoup texture d'une membrane pituitaire."

In investigating the anatomy of this tribe of Gasteropodous Mollusca, I detected an organ which appeared to have been entirely neglected, or has escaped the notice of those who have dissected these animals. It is a depression or cul-de-sac, having its orifice beneath the mouth, between the inferior lip and the anterior extremity of the podal disk, and which in many species of different genera is elongated backwards into a blind duct, more or less deep, occupying a situation just above the podal disk, within the visceral cavity. In Bulimus fasciatus it extends backwards as far as the tail, and is several times folded upon itself; in Glandina truncata it extends the length of the podal disk; in the various species of Helix it is found from a superficial depression to a sac the length of the podal disk; in Succinea obliqua it is of considerable length; in Limax and Arion it is a superficial depression: in an undetermined species of Vaginula, hereafter to be described, I found it half an inch in length, &c.

It is composed of two laminæ; a delicate lining mucous membrane and an external layer, having a whitish or reddish glandular appearance. A large nerve, on each side, from the subœsophageal ganglia, is distributed to its commencement, besides which it receives numerous smaller branches along its course from the same ganglia. Its arterial supply is derived from the cephalic branch of the aorta.

This organ, from its situation, relative size to the degree of perfection of the olfactive sense, as in the carnivorous Glandina truncata, &c., its structure, and nervous supply, I think, is the olfactory organ.*

The Committee on Mr. Cassin's communication, read Nov. 17, 1846, reported in favor of publication.

Note on an Instinct probably possessed by the Herons, (Ardea, *Linn.*)
By John Cassin.

Several years since, I had an opportunity of observing the Great Heron (Ardea Herodias, Linn.) engaged in capturing fishes, and was much surprised at the singular facility with which he struck his prey beneath the surface of the water. This was done almost invariably by striking laterally and obliquely, very rarely vertically or nearly so, as fishes came within reach.

It appeared to me at that time, and more recent observations have tended to confirm the impression, that this bird, and others which procure food in the same manner, must possess an instinctive knowledge of refraction.

A moment's consideration is sufficient to warrant the inference that this knowledge, if possessed at all, must be instinctive and transmitted from parent to offspring; for it is obvious that if every young bird should be obliged to acquire it, his risk of starving during such apprenticeship would be imminent.

My observations have not been sufficiently extended to fully justify a conclusion, but I have little doubt that the opinion here expressed is correct,—my object, however, is more especially to ask attention to this remarkable and hitherto unnoticed subject.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Annual Report of the Treasurer was read and referred to the Auditors.

The Annual Report of the Librarian was read and adopted.

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* Since writing the above, I have had an opportunity, through the kindness of Mr. Cassin, of examining a specimen of Helix pomatia, from Europe, in which I find the organ in question existing as a funnel-shape depression beneath the mouth, and extending backwards along the podal disk for the distance of three-fourths of an inch. This I consider particularly interesting, as the same species has been minutely dissected and described by Swammerdam, Cuvier, and others, without any reference whatever to this cul-de-sac.

The Society then went into an election for Officers for the year 1847. The following result was reported by the Tellers:

PRESIDENT.

William Hembel.

VICE PRESIDENTS.

J. Price Wetherill.
Samuel George Morton, M. D.

CORRESPONDING SECRETARY.

Walter R. Johnson.

RECORDING SECRETARY.

Theodore F. Moss.

LIBRARIAN.

Wm. S. Zantzinger, M. D.

TREASURER.

George W. Carpenter.

CURATORS.

Joseph Leidy, M. D.
William S. Vaux.
Samuel Ashmead.
John Cassin.

AUDITORS.

Robert Pearsall.
Wm. S. Vaux.
Robert Bridges, M. D.

COMMITTEE OF PUBLICATION.

Wm. S. Vaux.
Walter R. Johnson.
Thomas B. Wilson, M. D.
Samuel Ashmead.
William Gambel.

The following gentlemen were elected Correspondents of the Academy.

Charles Hamilton Smith, Esq.,	of London.
Thomas C. Eyton, Esq.,	do.
George Robert Gray, Esq.,	do.
Richard Kippist, Esq.,	do.
M. E. Prisse,	of Paris.

The following Resolutions, offered by Dr. Bridges, were unanimously adopted.

Resolved, That the thanks of the Academy be presented to the late Recording Secretary, Dr. W. S. Zantzinger, for the ability and zeal with which he has performed the duties of that office for the past five years.

Resolved, That the thanks of the Society be presented to the late Librarian, Dr. Joseph Leidy, for the able and faithful manner in which he has fulfilled the duties of his office for the past year.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. 3. JAN., AND FEB., 1847. No. 7.

Stated Meeting, January 5, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Casts of the hand of Troglodytes niger, (Chimpanzee), and of the inferior extremity of the radius of a fossil mammal obtained near Richmond, Va. From Dr. J. Wyman.

Sternum of Oidemia perspicillata. From Mr. Woodhouse.

Specimens in skin, of Putorius noveboracensis, from Bucks Co., Pa.; Sorex brevicaudatus, Say, and Vespertilio carolinensis, Geof., from Chester Co., Pa.; and V. noveboracensis, L., from Newark, Del. From Dr. T. B. Wilson.

DONATIONS TO LIBRARY.

Annales des Mines. 4me. Série, Tome viii. Livs. 5 and 6 de 1845. In exchange.

Twenty-sixth Report of the Council of the Leeds Philosophical Society. Leeds: 1846. Fom the Society.

Message of the President of the United States, communicating a Report of an Expedition by Lieut. Abert to the Upper Arkansas, and through the country of the Camanche Indians, in the autumn of 1845. From Col. Abert.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3, No. 3. From the Association.

Sound and Sanctified Scholarship; an Address delivered at the Dedication of the new edifice of the Western University of Pennsylvania, on Tuesday, Sept. 8, 1846. By David H. Riddle, D. D. With introductory remarks by George Upfold, D. D. From the Author.

Observations of the Magnetic dip at several positions, made in 1840, 1842, 1843, 1844 and 1845. By Major James D. Graham, U. S. Topographical Engineer. (From the Trans. of Amer. Phil. Soc., Vol. ix.) Philadelphia: 1846. From the Author.

Proceedings of the American Academy of Arts and Sciences of Boston. May 26 to Dec. 1, 1846, inclusive. From the Academy.

Dr. Thomas B. Wilson deposited the following works:

Tableau Encyclopédique et Méthodique des trois régnes de la Nature. (Ornithologie.) Par l'Abbé Bonnaterre et L. P. Vieillot. 4 vols. 4to.

A General System of Nature, &c. By Sir Charles Linné: translated by Wm. Turton, M. D. 7 vols. 8 vo.

The Zoology of the Voyage of H. M. Ship Sulphur, under the command of Capt. Sir Edward Belcher, R. N., &c., during the years 1836 to 1842. Edited and superintended by Richard Brinsley Hinds, Esq., Surgeon to the Expedition. Vol. 1. 4to. London: 1844.

A Monograph of the Anatidæ or Duck tribe. By T. C. Eyton, Esq., F. L. S., &c. 1 vol. 4to. London, 1838.

Zoological Lectures delivered at the Royal Institution in 1806 and 1807. By George Shaw, M. D., F. R. S. 2 vols. large 8vo. London: 1809.

Atlas de Zoologie, ou Collection de 100 planches comprenant 257 fig. d'animaux nouveaux ou peu connues, classés d'apres la methode de M. de Blainville; avec une explication par M. Paul Gervais. 1 vol. 8vo. Paris: 1844.

A selection of the Birds of Brazil and Mexico. The drawings by William Swainson, Esq. 1 vol. 8vo. London: 1841.

Beitrage zur Naturgeschichte von Brazilien. Von Maximilian Prinzen zu Wied. Reptilia, Aves, Mammalia, 5 vols. 8vo.

Descriptiones Animalium quæ in itinere ad Maris Australis terras per annos 1772, 1773 and 1774 suscepto: collegit, observavit et deliniavit Joannes Reinoldus Forster, F.R.S.; nunc demum editæ auctoritate et impensis Academiæ Litterarum Regiæ Berolinæ, curante Henrico Lichtenstein. 1 vol. 8vo. Berlin: 1844.

Ornithological Dictionary of British Birds. By Col. G. Montague, F. L. S. 2d edition: by James Rennie, F. L. S. 8vo. London: 1831.

Journal of a Voyage to New South Wales; with sixty-five plates of nondescript Animals, Birds, and other natural productions. By John White, Esq., Surgeon to the Settlement. 1 vol. 4to. London: 1790.

Letters were read:

From Richard Brown, Esq., addressed to the Corresponding Secretary, dated Sydney Mines, Nova Scotia, Dec. 9th, 1846, acknowledging the receipt of his notice of election as a Correspondent.

The following extract from this letter is interesting:

"I have visited Cranberry Head several times recently, and have made a section and drawings of the fossil trees there. The first tree near the Point is based upon a small seam of coal: lately a large piece of the cliff has fallen down, and part of the tree with some of the coal under it. Fortunately it has exposed two long roots—one branching to the North and the other to the South—about seven feet each way. They are very broad and flat, and are *genuine Stigmaria*. I could not trace any rootlets, but the areolæ are not to be mistaken. I have preserved some large pieces, as also some of the bark, of the tree, which is apparently an irregularly fluted *Sigillaria*.

In a bed of Shale, some twenty feet lower in the section, I have also found several small upright trees, about eight inches diame-

ter, filled with soft shale, but having a pith of beautiful bright coal, 1½ inches in diameter, running up the middle: the bark is fluted; the roots, long fibres, something like the leaves or rootlets of Stigmaria."

From Wm. D. Breckenridge, Esq., dated Washington, Dec. 29, 1846, returning, with acknowledgments, a collection of ferns from the Berlin gardens, which had been loaned him by permission of the Society for examination and comparison.

From the Trustees of the Western University of Pennsylvania, dated Dec. 9, 1846, referring to the loss by fire lately sustained by that Institution of its entire Museum and Library, and asking for donations towards a renewal of the same, particularly the latter. Referred to the Library Committee.

Meeting for Business, January 26, 1847.

VICE PRESIDENT MORTON in the Chair.

The Report of the Corresponding Secretary was read and adopted.

The following resolution was adopted:

Resolved, That the proposal of Mr. Henry Seybert to deposit his valuable chemical apparatus in the Academy, to become ultimately the property of the Institution—unless withdrawn by himself during his life time—and subject to its Rules and By-Laws on this head, be accepted.

The Society then proceeded to elect the usual Standing Committees for the year. The following result was reported by the Tellers:

COMMITTEES FOR 184~.

Geological and Mineralogical.

J. Price Wetherill, W. R. Johnson,
S. G. Morton, Samuel Ashmead,
Wm. S. Vaux, Theodore F. Moss,
Lewis T. Germain.

Zoological.

J. S. Phillips, John Cassin,
Edward Harris, J. K. Townsend,
S. S. Haldeman, William Gambel,
A. L. Heermann.

Botanical.

R. Bridges, R. E. Griffith,
W. S. Zantzinger, Gavin Watson,
R. Kilvington.

Physics.

Walter R. Johnson, John S. Phillips,
Paul B. Goddard, Theodore F. Moss,
Henry Seybert.

Library.

Robert Bridges, Robert Pearsall,
Edward Hallowell, George W. Carpenter,
S. B. Ashmead.

Committee on Proceedings.

S. G. Morton,
John S. Phillips,
Wm. S. Zantzinger,
} *Corresponding and Recording Secretaries, ex-officio.*

Coleman Fisher, Jr., of Philadelphia, was elected a Member.

And John P. Barratt, M. D., of Barrattsville, South Carolina, was elected a Correspondent.

Stated Meeting, February 2, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

The Curators exhibited a fine articulated skelton of a Bengal Tiger of very large size, and an extensive collection of human and other crania, recently received from Dr. Huffnagle of Calcutta, and placed by him on deposit in the Society's Cabinet.

The collection embraces the following: Cranium of a native of South Australia: two crania of Hindoo fanatics, taken from the Temple of Juggernaut: cranium of an individual of a Brahmin caste: of an Affghan from the field of Jugdaullek: of a Chinese pirate: of a Malay pirate: of a Hindostanee: and several other human crania not labelled. Also, crania of the following animals:—Crocodilus vulgaris, and Gavialis gangeticus, (both remarkably large and perfect specimens,) Trionyx Indicus, Sus scropha, Felis tigris (five specimens), Canis aureus (two spec.), C. familiaris (fox-hound and blood-hound, three spec.), Delphinus ——, Simia satyrus (young), Simia ——, Antilope —— (two spec.) &c., &.

Mr. Cassin presented from Mr. Aaron Sharpless, of Chester county, Pennsylvania, two fine living specimens of a hybrid between Numida meleagris (Guinea fowl) and Meleagris galla-pavo (turkey), which had been hatched and raised on his farm.

DONATIONS TO LIBRARY.

The characters of some new genera and species of compositæ from Texas. By Asa Gray, M. D., (from the Proceed. of Am. Acad. of Arts and Sciences, Dec. 1846.) From the Author.

On the Origin of Continents. By James D. Dana, (from

the Am. Journal of Sciences, vol. 3, 2d series.) From the Author.

On Zoophytes. No. 3. By James D. Dana, (from the Am. Journ. of Science, vol. 3, 2d series.) From the Author.

On three several Hurricanes of the Atlantic, and their relations to the Northers of Mexico and Central America, with notices of other storms. By William C. Redfield. New Haven, 1846. From the Author.

The Literary Record and Journal of the Linnean Association of Pennsylvania College, vol. 3, No. 4. From the Association.

Récapitulation des Hybrides observés dans la famille des Anatidées. Par Edm. de Selys Longchamps. From the Author.

Revue critique des Oiseaux d' Europe, par le Docteur Schlegel. Extrait de la Revue Zoologique par la Societé Cuvierienne, Jan. 1845. From M. de Longchamps.

A letter was read from James Robb, Esq., dated King's College, Frederick, N. B., 9th Jan. 1847, acknowledging the receipt of his notice of election as a correspondent.

A paper by Mr. Haldeman, describing one new genus and several new species of insects, was read and referred to a committee consisting of Mr. Markland, Dr. Leidy and Dr. Zantzinger.

Mr. Germain, of Burlington, read a paper entitled "A collation and statement of some of the effects of Electricity and Galvanism, having seeming analogy to the purification and circulation of the blood," which was referred to the following committee: Dr. Bridges, Prof. Johnson and Mr. Moss.

Stated Meeting, Feb. 16, 1847.

Vice President Morton in the chair.

DONATIONS TO MUSEUM.

Sternum of Strix brachyotis, and the fangs of a molar tooth of Zeuglodon cetoides, Owen, cut transversely to exhibit its internal structure. From Dr. Joseph Leidy.

Sternum of Aquila leucocephalus. From Mr. S. W. Woodhouse.

Two specimens of Baculites ovatus, one of them ten inches in length; also a fine specimen of Ammonites Delawarensis with the cast of the same, and a specimen of A. placenta; all obtained from the marl pit near Moorestown, N. J. Presented by Mr. Lewis T. Germain.

Cranium of Zygæna malleus. From Dr. R. E. Griffith.

Fine specimen of Apophyllite from Andreasberg, Upper Harz, Hanover. Presented by Mr. Moss.

DONATIONS TO LIBRARY.

Histoire Physique, Politique et Naturelle de l' Ile de Cuba; par M. Ramon de la Sagra. Livs. 52, 53, 54. From Messrs. Wetherill, Morton, Phillips, Clay, Vaux and Elwyn.

De Candolle's Prodromus systematis naturalis regni vegetabilis. Parts 8, 9 and 10. Purchased by Academy.

Vermium terrestrium et fluviatilium seu animalium infusoriorum, helminthicorum, et testaccorum non marinorum, succincta historia. Auctore Othone Fréderico Müller. Vol. 1, Part 1; and vol. 2, quarto. Hafniœ, 1773 and 1774, From Dr. Paul B. Goddard.

Eight additional pages of Dr. Gould's description of Shells of the Exploring Expedition. From the Author.

Mr. Gambel read a paper in continuation of his "Remarks on the Birds of Upper California," which was referred to the committee on the former portions.

Dr. Morton read a notice by Mr. M. Tuomey, State Geologist of South Carolina, of his discovery of the Cranium of Zeuglodon cetoides, Owen, in the vicinity of Charleston; accompanied with a drawing of the same. Referred to Dr. Morton, Mr. R. C. Taylor and Dr. Leidy.

A letter was presented by Mr. Moss, addressed by Mr. Graf of St. Petersburg to Baron Wrangel, in relation to exchanges of Birds between the latter and the Academy. Referred to the Zoological committee.

Mr. Gliddon presented a translation of the Hieroglyphical inscription on the Sarcophagus of the Egyptian Mummy now in the Academy.

Meeting for Business, February 23, 1847.

Vice President Wetherill in the Chair.

The Committee to whom was referred Mr. Haldeman's paper read on the 2d inst., reported in favor of publication.

Descriptions of several new species and one new genus of Insects.

By S. S. Haldeman, A. M.

Blethisa *quadricollis.* Black, somewhat bronze; head elongate, transversely impressed behind the eyes, which are prominent; frontal impressions long and bisinuate, posteriorly connected with the transverse impression; labrum quadrate, slightly bisinuate anteriorly; antennæ steel blue, as long as the head and prothorax, four basal articulations glabrous. Prothorax quadrate, bitruncate, wider than the head, slightly rounded on the sides anteriorly, and very slightly sinuated behind the middle; posterior angles rounded; margin depressed and reflexed; transverse impressions very deep, the anterior one in the arc of a circle; dorsal line deep, transversely wrinkled, bi-abbreviated; basal impressions deep, punctured, with an obtuse slightly elevated ridge near the margin. Elytra a little wider than the head, obtusely rounded behind; deeply punctate-striate, striæ somewhat interrupted; 3d interstice with four or five large foveæ; 5th with three foveæ, the anterior one being behind the anterior one of the other range; 6th with two foveæ, one below the humerus, and one (sometimes

obsolete) towards the apex; margin subcupreous, with confused ranges of smaller punctures; legs steel blue; anterior femora with a very slight prominence in the female. 7½ l. long. 3 l. wide.

Found by Mr. Joshua Child upon the Southern shore of Lake Superior. The elytra agree with those in B. multipunctata, *Fab.* and the thorax apparently with that of B. eschscholtzii.

*Chorea. Body short, robust, and of a rather solid consistency; head small, deflected; maxillary palpi robust, prominent, last joint largest, and triangular; antennæ short, serrate, not sensibly tapered, placed between the eyes and a little removed from them, which renders them approximate; they are inserted upon each side of a slight frontal elevation, and are borne parallel, arched over the thorax and extending a little beyond the scutel. Prothorax short, transverse, inflated, anterior angles obtusely rounded, posterior ones produced in a sharp angle. Scutel rounded. Elytra elongate, texture solid, with wings beneath. Abdomen of five inflated segments. Feet slender, the *posterior coxæ very long*, being as long as the femur proper, which is much reduced in length, although the limb is of ordinary length. Tarsi with short hair, but scarcely pulvillate; penultinate articulation bilobed. Probably a female.

A single individual taken upon the porch of my residence. It endeavored to liberate itself by a sharp click, which, with the shape of the prothorax, led me to suppose it an Elater. The click was produced by approximating the anterior femora along the breast and separating them with a sudden jerk which could be heard and felt. There is nothing apparent in the structure of the anterior feet to indicate this peculiar use of them.

Chorea *pulsator*. Dull black, minutely punctured, slightly hairy; palpi bright testaceous: tarsi and tibiæ dull rufous; pronotum covered with piliferous punctures, dorsal line not apparent; elytra with nine striæ filled with large elongate punctures. 4 l. long. Pennsylvania, in April.

Eburia *distincta*. Flavescent, covered with a short whitish pubescence; labrum fringed with fulvous hair; front imprest; medial line of the head glabrous posteriorly; prothorax subcylindric, narrowed before, with an anterior and posterior transverse impression; sides armed with a short spine; disk on each side, a little before the middle, with a round black glabrous tubercle; elytra with a basal and medial pair of approximate stigmata, the former somewhat oblique, the latter with the interior one about half the length of the exterior. 10—12 lines long. Georgia and Mississippi.

Distinguished from the more northern species E. 4-geminata *Say*, distincta *Dejean*, by a more dense pubescence, less globular prothorax with its deeper lines and larger tubercles; and the shorter internal posterior stigma.

ENAPHALODES *simplicicollis*. Dark brown, elytra somewhat paler from a short pubescence; prothorax subglobular, minutely granulate; dorsal line slightly impressed posteriorly, a lateral obsolete impression before the middle towards the exterior margin; elytra sparsely and deeply punctured, bi-spinose at tip. 11½ l. long. Georgia. Distinguished from E. *lecontei*, Dejean, (*pulverulentum*, Fabr., hitherto considered an Elaphidion by me) in having a smaller prothorax, a darker color, and in being less. For the opportunity to describe this and the next species of Longicornia, I am indebted to the kindness of my friend Dr. J. L. Le Conte, in whose cabinet they are.

STENURA? *cyanea*. Brilliant metallic blue with greenish reflexions: front impressed, antennæ, mandibles, labrum, terminal joint of palpi, and scutel, black; elytra scabrous with confluent punctures; femora rufous, apex and extreme base, with the tibiæ and tarsi, blackish. 6 l. long. Lake Superior.

PLOIARIA *maculata*. Brown, superior wings pale grey with whitish reticulations, and maculate with brown, darkest towards the base, where there is a long conspicuous triangle with its apex extending to the base; anterior edge of the wing with a single series of spots, apex with a semicircle of large ones. 2. l. long. Pennsylvania, in July.

The only specimen of this well marked species is imperfect, and although taken several years ago, a second individual has not been seen.

The Committee on Mr. Tuomey's paper read at last meeting, reported in favor of publication.

Notice of the discovery of a Cranium of the ZEUGLODON.

BY M. TUOMEY, State Geologist of South Carolina.

Almost every day adds something to our knowledge of those remarkable forms, which in the revolutions of time have passed out of existence. In 18—, Dr. Harlan described and figured in the Transactions of the Geological Society of Pennsylvania, some fossil bones from Alabama, consisting of portions of the upper and lower maxillæ of an animal under the name of "Basilosaurus," from an impression that they belonged to a gigantic Saurian. An examination of the teeth, however, satisfied Professor Owen that these remains belonged to a Cetacean, to which he has given the name "Zeuglodon."

The first description of an entire tooth of this animal, was given by Mr. Buckley, in a concise account of the discovery of a considerable portion of the skeleton, published in the American Journal of Science in 1843. In 1845, Dr. R. W. Gibbes, of South Carolina, published in the Proceedings of the Academy of Natural Sciences

of Philadelphia, accurate figures of similar teeth with fragments of the lower maxilla. The teeth being hollow, and, in his opinion presenting other important differences, he constituted for them a new genus, "Dorudon."

The "Hydrarchos," I believe, has passed away without advancing our knowledge upon this interesting subject, excepting perhaps that Prof. Wyman discovered in the extremity of the ribs some cetacean characters.

The next important development consisted in the publication by Professor Emmons, in the American Quarterly Journal of Agriculture, beautiful figures of the teeth, anterior portion of lower maxillæ, together with a portion of the ramus having the coronoid process and condyle almost perfect, cervical and caudal vertebræ, and a rib. But up to the present time, no notice has appeared of the discovery of any considerable portion of the cranium proper—for the mutilated head of the so called Hydrarchos can scarcely be considered an exception.

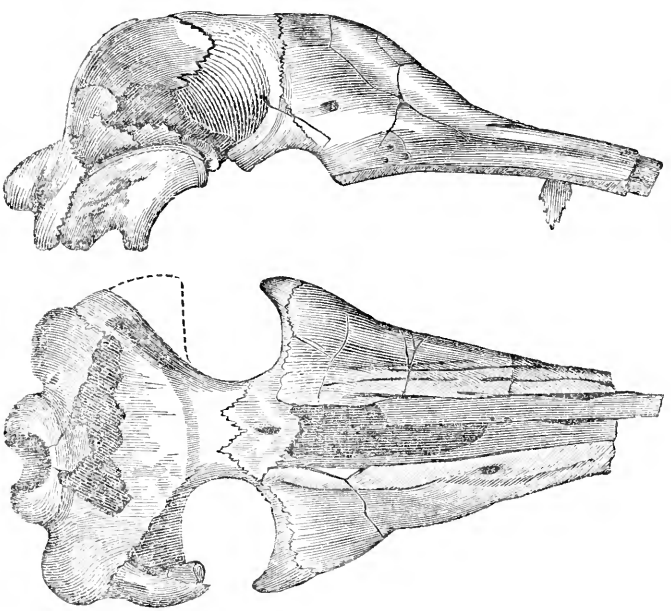
Early in January I was presented by F. S. Holmes, Esq., with a portion of the left upper maxilla, containing one tooth and the alveolæ of several others, which he discovered in the Eocene beds of Ashley river, about ten miles from Charleston. Soon after, Prof. Lewis R. Gibbes, of the College of Charleston, visited the same locality, and had the good fortune to find the rest of the scull, much fractured, but so carefully were the fragments collected, that with a little patience we were enabled to restore them to their proper places. It is then altogether to these gentlemen that we owe a knowledge of this valuable fossil.

Description. Occipital bone somewhat semicircular, transversely flat or slightly concave, central portion thin; a crest-like ridge surrounds the superior portion terminating in the suture with the temporal bone. Condyles two, articulating surfaces lunate, and almost enclosing the foramen magnum. Foramen magnum oval; transverse diameter 1½ inches, vertical diameter 1 inch; transverse processes thick, spreading, making the breadth of the base of the cranium equal to its diameter across the zygomatic processes; jugular foramen ½ inch in diameter; temporal bones small, mastoroid portion thick and strong but not prominent; articulating cavities for condyles of lower maxillæ large, forming about 30° of a circle, inclining inwards and backwards; maxillæ thick and strong, vertical section triangular; a cavity for nerves and vessels runs within at the points of the roots of the teeth; alveolar process thick; palatal bone strong, anteriorly emarginate and horizontal, posteriorly descending below the alveolar process.

Frontal bone and anterior portion of maxillæ wanting; walls of the nasal canal smooth; sutures squamous; in the left maxilla one tooth remains, which is solid, spear-shaped, edges coarsely serrate, exterior side flattened, interior side convex; agreeing in this respect with the position of the teeth in the shark; roots double,

nearly parallel, and inserted obliquely backwards; in the right maxilla are the alveolæ for eight teeth with double roots. In the solidity of the teeth and slight divergency of the roots, this specimen agrees with the figures of Dr. Harlan and Prof. Emmons.

This fossil is particularly interesting, as it removes every doubt, if any remain, of the true character of the animal to which it belonged. The double occipital condyle shows it to have been a mammal, while the squamous sutures and a symmetrical form refer it to the Cetaceæ.



Dimensions. Length 14½ in.; greatest breadth 7½ in.; height 5½ in.; length of enameled portion of tooth ⅞ in.; breadth ⅝ in. It was evidently a young individual.

Geological position. The teeth described by Dr. Gibbes were found in the oldest of the calcareous beds of the Eocene of South Carolina, which contain *Cardita planicosta* and other well known Eocene fossils, together with *Gryphea mutabilis* and *Terebratula harlani*, which are also common to the cretaceous formation. And the fossil just described was found in upper beds of the Eocene so that the Zeuglodon must have existed through the whole of the Eocene period; a period which, in South Carolina, was at least sufficiently long for the deposition of three hundred feet of calcareous and sedimentary matter; a fact which was ascertained by boring at Charleston.

Remarks on the Birds observed in Upper California.

By William Gambel.

(Continued from page, 115.)

PASSERES.

Genus *Chamæa.†

Bill short, tapering to the point, acute and compressed. Both mandibles entire, ridge of upper elevated, and curving nearly from the base; the depression for the nostrils large, oval, and exposed; the nostrils opening beneath a membrane in the depression. Wings very short and much rounded. Tail very long and graduated. Tarsus long.

Chamæa fasciata, Nobis. Ground Tit.

Parus fasciatus, nobis, Proceed. Acad. Nat. Sc., vol. 2, p. 265.

This interesting bird, placed provisionally among the Titmice, I have now made the type of a new genus, not being able. as yet, to find a suitable place for it, among those already described.

For several months before discovering the bird, I chased among the fields of dead mustard stalks, the weedy margins of streams, low thickets and bushy places, a continued, loud, crepitant, grating scold, which I took for that of some species of wren, but at last found to proceed from this Wren-Tit, if it might so be called. It is always difficult to be seen, and keeps in such places as I have described, close to the ground; eluding pursuit, by diving into the thickest bunches of weeds and tall grass. or tangled bushes, uttering its grating wren-like note whenever an approach is made towards it.

But if quietly watched, it may be seen, when searching for insects, to mount the twigs and dried stalks of grass sideways, jerking its long tail, and keeping it erect like a wren, which, with its short wings, in such a position it so much resembles. At the same time uttering a very slow, monotonous, singing, chickadee note, like *pee pee pee pee peep;* at other times its notes are varied, and a slow whistling, continued *pwit, pwit, pwit, pwit, pwit, pwit*, may be heard. Again, in pleasant weather towards spring, I have heard them answering one another, sitting upon a low twig, and singing in a less solemn strain, not unlike a sparrow, a lively *pit, pit, pit, tr r r r r r r r*, but if disturbed, at once resumining their grating scold.

Parus inornatus, Nobis. Plain Titmouse. Proceed. Acad. Nat. Sc., vol. 2, p. 265.

The Plain Titmouse I first discovered near Monterey on the 20th of November. It was actively flitting about among the evergreen oaks of the vicinity, in company with large flocks of the Chestnut-backed and Least Titmouse, all in restless activity, searching every branch for insects.

Among the busy throng I could not well distinguish its notes, but they appeared to resemble very much those of the common Black-cap, and on my following it up, uttered a loud scold, erecting its high and pointed crest. and looking as angry as possible at the intrusion.

† From χαμαι, on the ground.

I afterwards found it common, frequenting in small flocks tall bushes and branches of small trees, uttering a weak and slender *tsee day day, tsee day day dait.*

Parus montanus, Nobis. Rocky Mountain Titmouse. Proceed. Acad. Nat. Sc., vol. 1, p. 259.

I have already stated all that I know of this new and handsome species, in the description contained in the number of the Proceedings above referred to.

It was exceedingly abundant in the western ranges of the Rocky Mountains, particularly in the high ridges near the great salt lake, in the wooded portions of which they were roaming in large flocks, and from thence to the Californian ridge, on the other side of which I never saw them. In habits, as well as appearance, it resembles very much the *P. atricapillus*, but is at once distinguished by the two white lines, running over the top of the head to the occiput.

Parus rufescens, Towns. Chestnut-backed Titmouse.

In the latter part of summer and during the winter season, the young of this species are found around Monterey in large flocks.

Parus minimus, Towns. Least Titmouse.

This interesting and most diminutive bird, is exceedingly abundant in the Rocky Mountains and California. During winter, the otherwise cheerless woods, are alive with busy, noisy troops of these industrious birds, gleaning their scanty fare in company with the Ruby-crowned Kinglet, in every possible manner and position from bush or tree.

It is curious to watch them in this anxious solicitous search for food, keeping up a continual twittering; so intent are they in their employment, that they appear to lose sight of danger, and often have I been so surrounded by a flock, that I could have almost caught them in my hands.

The above additional species, together with the *P. septentrionalis*, recently described by my friend Mr. Edward Harris, in the Proceedings of the Academy, have increased the number of North American Titmice, exclusive of the Ground Tit, to nine species.

Trichas Marylandica. Maryland Yellow Throat.

This species, distributed throughout the whole of North America is common, both in the Rocky Mountains and California.

Vermivora celata, Say. Orange-crowned Warbler.

Flocks of this species are common during winter in Upper California, frequenting low bushes and margins of streams. On the Island of Santa Catalina in early spring I heard its simple though lively song, commencing in a loud sweet shrill and ending *tshé up*, sometimes considerably varied, but generally *er r r r r r tshé up.*

Sylvicola Audubonii, Towns. Audubon's Warbler.

This handsome warbler is abundant throughout the West. I first observed it in New Mexico, thence through the ranges of the Rocky Mountains to California, where, particularly during winter, the young birds are found in large flocks, and generally in the tops of trees. Its habits as well as

appearance they resemble the Yellow Rump, *S. coronata*, and like them also, display a great deal of familiarity, entering the towns, and resorting to gardens and fence rows, and even the corals of the houses; frequently also, descending to the ground with the Blackbirds and Sparrows.

Sylvania pusilla. Wils. (Nutt.) Green Black-capped Flycatcher.

Myiodyoctes Wilsonii, Aud.

This pretty little Sylvan Flycatcher is common both in the Rocky Mountains and California.

Culicivora cœrulia, Lath. Blue-grey Flycatcher.

Abundant in Upper California.

Tyrannula pusilla. Swains. Little Pewee Flycatcher.

I observed this species to be plentiful about the Pueblo de los Angeles in Upper California, where most probably they breed. During the month of April, it frequented the hedges of vineyards and neighboring trees, uttering a sweet and considerably varied song. The following description of an adult killed there in the spring, may be useful, to show that it is the same bird as that described by Swainson in the Arctic Zoology, and that found in Labrador by Audubon. Above greenish olive; wings and tail dusky brown, the coverts tipped with dull white, forming two bands on the wing: the tertiaries also broadly edged with the same. Below yellowish, brightest on the lower part of the throat and breast, and on the abdomen. Feet and legs bright lead-blue. A yellowish ring around the eye. Upper mandible black, the lower pale flesh colored; inside of both, orange. Tail even, $2\frac{1}{2}$ inches; wings $2\frac{3}{8}$ inches. Tarsus $\frac{5}{8}$. Bill along ridge about $\frac{3}{8}$, from angle of mouth $\frac{5}{8}$. Total length 5 inches. First quill a little shorter than the 6th; 3rd and 4th nearly equal. The bird has a conspicuous crest.

Tyrannula Saya, Bonap. Black-tailed Flycatcher.

T. pallida, Swans. Syn. Bds. of Mexico.

This species, common throughout the western regions of our country, is particularly so in California and the northern provinces of Mexico. Its manners much resemble those of the common Pewee, frequenting the neighborhood of towns, weedy hill sides and plains, darting from twig to twig after passing insects, jerking its tail, and merely uttering a single weak and singing *chip*, or an occasional guttural twitter, but very different from the harsh angry *tship* of the *T. nigricans*, with which it is so often associated. It breeds in California, and no doubt like its dark companion, about the houses and Missions, but I did not find its nest.

Tyrannula nigricans, Swains. Black Pewee.

This bird is abundant in California, and like our common Pewee is particularly fond of being near the habitations of man: with the utmost confidence, it is seen familiarly flying about the corals and gardens, and even the very doors; over which, on a projecting beam, about the middle of April, I found its nest. It was large for the size of the bird, and consisted of a solid round mason work

of clay, intermixed with fibres of grass, &c., and lined with a thin layer of softer materials, blades of grass, fine strips of bark from the neighboring vineyard, and horsehair, and contained four eggs. This was the second nest which had been built that year; the first near the same place having been destroyed by the occupant of the house, this was commenced still nearer the door. I was informed that it was difficult to get them to leave the place they had once selected for their nest, and that if it were torn down they would at once commence forming another. The previous year three successive nests had been destroyed. These birds are constant residents; and, as well as near the towns, are also distributed over the whole country, either in the margins of woods, or bushy plains, and almost always in pairs. They are very pugnacious, and are often seen fighting together in the air, and darting after each other from branch to branch, at the same time uttering their peculiar loud and angry *tship*, which can always be recognized. From the arrangement of its colors, at a little distance, when sitting with their breasts towards you, they are easily mistaken for Snow birds.

Tyrannus borealis, Swains. Olive-sided Flycatcher.

T. Cooperii, Nutt.

I found this species scatteringly in the Rocky Mountains: it is quite abundant in the Pine woods of Upper California, for which it appears to have a great partiality. In the latter part of July I killed the young, not yet fully fledged, in the pines near Monterey, where they must have bred.

Tyrannus verticalis, Say. Arkansas Flycatcher.

This tyrant is an abundant resident in California. Around the Pueblo de los Angeles it takes possession of the hedges of the vineyards, orchards and gardens; noisy, pugnacious, and ever on the alert, it suffers no intrusion upon its dominions; Hawk, Raven, or Crow, not even its own species, are allowed to pass unmolested. For this reason it has acquired the name of *Correcuerbo* (Crow-chaser) by the inhabitants, who also gladly allow them full possession.

Tyrannus crinitus?

A large species of Flycatcher, very much resembling the Great Crested, is not uncommon in California. My friend S. F. Baird, of Carlisle, Pa., is in possession of a specimen, and considering it distinct, it will soon be published in a paper he has prepared, upon the North American birds of this family. Near Monterey I have heard it uttering the *payup* note of the Great Crested, and at Santa Barbara they were breeding in the knot holes of the evergreen oaks in May.

Ptilogonys Townsendii, Aud. Townsend's Ptilogonys.

This rare bird I frequently found in the Rocky Mountains of the interior of California. See Proceedings of the Academy for April, 1843.

Icteria viridis, Gmel. Yellow-breasted Chat.

The Chat arrives in California about the middle of April, and resorts to the hedges of vineyards, gardens and bushy places, where no doubt it breeds.

It is very extensively distributed on our continent, as I observed it also common along the coast of Peru.

Vireo solitarius, Vieill. Solitary Vireo.

During the latter part of summer and winter, the young birds of this species are abundant, frequenting low bushes and thickets, in small flocks.

Descriptions of New Species of Coleoptera of the United States.

By F. E. Melsheimer, M. D.

(Continued from Vol. 3, page 66.)

Criocerida, Leach.

Donacia, Fabr.

1. D. *cuprea.* Cupreous above; antennæ and feet testaceous, the former with the third joint longer than the second; the latter with the posterior femora brown at tip. 3—3½ l. long. Pennsylvania.

Cupreous, tinged with bluish above: head sparsely greenish-ashy-pubescent, densely and very minutely rugose, with the frontal groove most frequently profound, sometimes obsolete; mouth, palpi and antennæ, testaceous, the latter with the third joint distinctly longer than the second; mandibles black: thorax subquadrate, hardly as long as wide, narrower behind than before; obsoletely and very distantly punctulate on the disk; confluently and very minutely rugose; a small oblong tubercle behind each anterior angle; medial line indistinct, sometimes wanting; basal margin rather transversely indented: elytra punctate-striate, the interstices densely and minutely rugose, with two obtuse and rather obsolete subsutural impressions; humeral angles polished, almost impunctured; apex obliquely truncate; beneath and sides of the head, dull silvery sericeous: feet dull testaceous, with the posterior femora in particular, brown at the posterior half, and obtusely toothed towards the tip.

Var. a. Elytra golden-yellow.

2. D. *indica.* Black above; antennæ, tibiæ and tarsi dull rufous; thorax quadri-tuberculate; elytra broad, rounded at apex. 4 l. long; 1¼ l. wide. Pennsylvania.

Donacia indica, Melsh. Catal.

Black, glossy above: head with a slight bluish tinge, densely rugose-punctulate; frontal impressed line short, distinct; antennæ short, dull rufous, with the basal joint entirely, and the apical half of the remaining joints, brown or black; second joint almost as long as the third; mouth brownish-piceous: thorax distinctly longer than wide, not half as wide as the elytra, wider at apex than at base; above finely confluently rugose; four small, obtuse, polished tubercles before the middle, placed in a transverse arcuated row, the two posterior or middle ones small, only distinctly seen from an above view; medial impressed line fine, and not profound; anterior angles raised: scutellum ashy-brown-pubescent: elytra wide, comparatively short, transversely rugulose, punctate-striate, with the apex decurved and rounded; an obsolete subsutural depression:

beneath dusky silvery-sericeous, with the abdomen, as is common, pale or reddish brown; femora, excepting at base, blackish; base of femora, tibiæ and tarsi dull rufous; posterior femora hardly toothed at tip. This is a very rare species.

"D. *metallica*. Cupreous; antennæ and feet rufous; second and third joints of the former equal." Say, Journ. Acad. Nat. Sc., v. 283, 2.

Var. c. Blue; antennæ and feet as in the type.

3. D. *biimpressa*. Cyaneous; thorax with an orbiculate impression each side of the middle; elytra finely striate-punctate. 8 l. long; 1 l. wide. Pennsylvania.

Cyaneous, with a violaceous or greenish reflection, shining: head dull silvery-sericeous, confluently rugose-punctulate, with the frontal line profoundly impressed; antennæ moderately long, brown, with the base of the joints more or less dull rufous; second joint rather shorter than the third; mouth and palpi brownish: thorax longer than wide, wider at apex than at base; above tinted with greenish, finely, deeply and distantly punctured; medial line fine, more deeply impressed before the middle than towards the base; a small, suborbiculate, profound impression each side and near the middle; lateral tubercle moderate, oblong; anterior angles slightly tuberculate: scutellum dull violaceous, minutely and densely punctured: elytra faintly tinted with violaceous, finely transversely wrinkled, finely striate-punctulate, sutural region obtusely indented in two or three places; an oblique, rather obsolete, indentation from the humeral angles to the suture; apex obliquely truncate, almost rounded: beneath blackish, densely punctulate, dull silvery-sericeous; femora blackish or dark brown, with their base, tibiæ and tarsi, dull dark rufous; hind pair of femora with an obvious tooth towards the tip. This species is also very rare.

Var. a. Elytra violaceous, sculpture rather stronger than in the type; thorax darker than the elytra, with the two dorsal impressions shallow and somewhat obscure; bases of the antennal joints more obviously rufous than in the type. *Donacea violacea*. Melsh. MS.

4. D. *aurichalcea*. Brassy-yellow, shining; antennæ with the third joint somewhat longer than the second; thorax distantly punctulate; femora brassy-brown. 3 l. long; 1 l. wide. Pennsylvania.

Donacea aurichalcea, Melsh. MS.

Brassy-yellow, shining: head, color and sculpture as in the preceding species; antennæ moderately long, dull rufous, with the tips of the joints black; two basal joints almost black-brassy; second joint one-fourth shorter than the third: thorax longer than wide, wider at apex than at base; above distantly punctulate, with the medial line fine, rather obsolete; lateral tubercle moderate, oblong; anterior angles slightly tuberculate; scutellum ashy-pubescent, minutely and densely punctured: elytra, apart of the color, entirely as in the preceding species: beneath dull silvery-sericeous; femora brassy-brown, shining, with the hind pair obviously toothed towards the tip; base of the femora, tibiæ and tarsi, dull rufous. Though the present species is destitute of the two thoracic impressions, so conspicuous in *biimpressa*, it may nevertheless, perhaps, be a variety, if not the type, of that species.

6. D. *rutila*. Brassy yellow, shining; antennæ testaceous, with the third

joint longer than the second; thorax longer than wide, densely and very finely wrinkled. 3¼ l. long; 1¼ l. wide.

Brassy-yellow, tinted with golden: head brassy-brown, opake, confluently rugosely punctulate, with the frontal line long, deeply impressed; labrum, palpi and antennæ, rufo-testaceous; the first shining, impunctured; the last moderately long, slender, with the third joint distinctly longer than the second: thorax somewhat inequal, dull cupreous, longer than wide, wider at apex than at base, densely and finely rugose, with scattered impressed punctures; medial line distinct, deeply impressed before and behind the middle; lateral tubercle moderate, oblong, obtuse; anterior angles slightly tuberculate: scutellum plumbeous-sericeous, densely and minutely punctured; elytra strongly tinted with golden, and with a faint violaceous reflection, punctate-striate, transversely rugose; the ordinary humeral and subsutural depressions faint; truncate at apex: beneath dull silvery-sericeous; terminal abdominal segments rufous; femora brassy-brown, with their basal third, tibiæ and tarsi, dull rufous; hind femora not toothed. Inhabits Pennsylvania.

6. D. *nana*. Brassy-yellow, tinted with green; antennæ rufous, second and third joints subequal; thorax longer than wide; medial line profoundly impressed. 2 l. long; ⅔ l. wide. Pennsylvania.

Head dull brassy-green, densely rugose-punctulate, equal, with the frontal impressed line distinct; mouth rufo-piceous; antennæ ordinarily long, dark, dull rufous, with their tips blackish; basal joint brassy-brown, with the second joint hardly as long as the third: thorax decidedly longer than wide, obviously narrower at base than at apex; cupreous, finely rugose, with the disk polished and shining; medial line entire, wide and profound; basal margin transversely impressed; lateral tubercle obtuse, slightly oblong; anterior angles very feebly tuberculate; middle of anterior margin ordinarly elevated: scutellum plumbeous-sericeous; elytra rather convex, brassy-yellow, strongly tinted with green, finely wrinkled, striate-punctate; two slight, obtuse subsutural depressions; apex rounded: beneath plumbeous-sericeous or brassy-brown; feet brassy-brown, glossy, with the bases of the femora and tibiæ, dull rufous; hind pair of femora toothed. This species must be closely allied to *pusilla*, Say, but it differs from that species, according to Say's description, in having the thorax decidedly less punctured than the head, and its middle profoundly grooved.

"D. *quadricollis*. Brassy-green; thorax with the impressed line and lateral tubercle, obsolete." Say, Journ. Acad. Nat. Sc. v. 282, 1.

Var. a. Dull violaceous.

Orsodacna, Latr.

"O. *vittata*. Black, punctured; elytra pale testaceous; suture and outer margin black; feet rufous." Say, Jour. Acad. iii. 430.

Var. b. Entirely black. *Donacia atra*, Melsh. Catal.

O. *tricolor*. Head, thorax and feet rufous; elytra testaceous, with the suture and lateral submargin black. 3—4 l. long. Pennsylvania.

Head rufous, with the vertex indeterminately black; rugosely punctured; clypeus sparsely punctured; labrum impunctured; antennæ blackish, with 3 basal joints obsoletely rufous; joints 2–4th subequal; palpi and mandibles rufous, the latter with the tips black; eyes black: thorax slightly longer than

wide, wider before the middle than at base, with the sides rounded from the posterior contraction to the anterior angles, which are also rounded: scutellum dull rufous: elytra testaceous, with the suture broadly black before the middle, and gradually narrowed to the suture towards the apex; a broad similarly colored submarginal vitta, which attains neither the lateral edge nor the apex, towards which it is narrowed to a point; deeply and densely punctured; two very narrow, longitudinal, almost impunctured lines in the middle: postpectus dusky; abdomen, antepectus and femora, yellowish rufous; apical two-thirds of the tibiæ, tarsi and posterior margins of abdominal segments, dusky or black.

Var. a. Black, with the thorax dusky rufous.

"O. *Armeniaca*, Knoch: punctate, black, feet fulvous, elytra with a testaceous vitta. Form and size of O. *Cerasi*.' Germar Insect. Sp. Novæ, p. 526.

Var. a. Head and thorax dull rufous, the former with the vertex blackish; elytra testaceous, with the suture broadly reddish brown, a similarly colored submarginal vitta; beneath reddish-brown; feet paler.

Var. b. Black, with the anterior part of the head and feet yellowish-testaceous; a broad spot at base, and an abbreviated apical vitta at the suture, pale testaceous. *Donacia 4-notata*, Melsh. Catal.

Var. c. Entirely black.

Hispidæ, Kirby.

MICRORHOPALA, Chevr.

M. *porcata*. Black; elytra with three raised lines, and three double and one triple series of profound punctures. $1\frac{1}{3}$—1 l. long.

Hispa porcata and *minuta*, Melsh. Catal.

Black; head with three longitudinal impressed lines; antennæ blackish, with a tinge of reddish brown: thorax rough, with large dilated punctures, sometimes with a narrow impunctured medial line: elytra each with three longitudinal raised lines, and three double and one triple series of profound subquadrate punctures; sometimes a more or less obsolete raised line between the second and third lines, widely interrupted in the middle; sutural edges raised; exterior edges entire; apex rounded: beneath black; feet dull dark chestnut brown.

Galerucidæ, Steph.

GALERUCA, Geoffr.

G. *femoralis*. Black; thorax, elytra, tibæ and tarsi rufous or rufo-testaceous. $2\frac{1}{4}$ l. long.

Galeruca thoracica, Melsh. Catal.

Head black, rugosely punctulate, with a polished transverse raised line between the eyes, interrupted in the middle by a distinct impressed medial line; antennæ —; labrum black, entire, rounded at apex: mandibles dull testaceous, dusky at tip; palpi blackish, dull testaceous at tip; thorax rufo-testaceous, transverse, with the sides acutely rounded in the middle; above with large profound, scattered punctures; each side of the middle with a wide dusky indentation; medial groove obvious behind the anterior margin and before the posterior one, dusky like the two indentations; scutellum blackish or piceous-

brown; elytra color of the thorax, widest behind the middle, rather numerously and deeply punctured, and like the thorax glabrous; beneath and femora, black; pleuræ, epipleuræ, tibiæ and tarsi, testaceous. Very rare.

"G. *atripennis*. Black; thorax rufous, with two impressed spots; venter pale yellowish rufous." Say, Journ. Acad. Nat. Sc. iii. 461.

Var. a. Testaceous; antennæ and eyes black; scutellum, tibiæ and tarsi, dusky. *Galeruca paleacea*, Melsh. MS. Referable to the genus *Luperus*, Geoffr.

CALOMICRUS, Dillwyn.

C. *thoracicus*. Black; thorax and feet testaceous-yellow. 2 l. long. Pennsylvania.

Crioceris thoracica, Melsh. Catal.

Head deep black, with the clypeus dusky-piceous; very minutely punctured; a short longitudinal impressed line between the eyes, interrupted by a short transverse one; antennæ black or dark brown, more than half the length of the body, with the joints elongated; second and third joints shortest, equal; palpi black, piceous, with the tips dusky; labium and gula, testaceous: thorax transverse, testaceous-yellow, hardly punctulate, with the sides obtusely rounded; anterior edge truncate; posterior one obtusely rounded; an obtuse indentation each side of the middle, very faintly defined: scutel black; elytra oblong, with the sides parallel; deep black, shining, glabrous, obsoletely rugulose and punctured, punctures minute and distant; apex rounded: postpectus and abdomen, black; antepectus and feet, testaceous-yellow.

ŒDIONYCHIS, Latr.

1. Œ. *fallax*. Black; thorax with the limb, and elytra with the lateral margins and a broad vitta, red. 2—2¾ l. long; 1⅓—1½ l. wide. Pennsylvania.

Short-ovate, black, densely punctured: head very dark dull red, almost black, coarsely punctured, with a longitudinal impressed line between the antennæ, which are short, black, with the fourth joint slightly longest: thorax finely wrinkled, and somewhat distantly punctulate, with the limb red; and the disk transversely brown or dull reddish brown: scutel black, finely rugose-punctured: elytra rugulose, and with numerous small, profound punctures; black, each elytrum with the lateral margin and a broad medial vitta, red, margin and vitta united at tip: beneath and feet, black-piceous; pleuræ and epipleuræ, red; posterior femora much incrassated. It may be necessary to add to the foregoing description that the red color soon after death changes into a dirty testaceous, and that, most frequently, there is an indentation, more or less obvious, each side of the middle behind the anterior margin of the thorax. This species must be closely allied to *miniata*, Fabr.

2. Œ. *limbalis*. Brown-piceous; basal joints of the antennæ, lateral margins and apex of the elytra, and the two anterior pairs of feet, dull testaceous. 1⅓—2. l. long. Pennsylvania.

Flat, ovate, brown-piceous: head with a few minute scattered punctures; a profound transverse impressed line between the eyes, intersected in the middle by an obsolete longitudinal one; eyes deep black; antennæ fuscous, with the six first joints dull testaceous; palpi and two anterior pairs of feet, dull tes-

taceous: thorax impunctured, with the lateral margins clearer than the disk, and rather broadly depressed: scutellum impunctured: elytra punctured, punctures numerous, small, profound, and rather regular and equidistant: lateral margins and apex indeterminately and broadly dull testaceous: beneath brown or blackish-piceous; pleuræ and epipleuræ, dull testaceous; posterior femora rufo-piceons. Closely allied to *quercata*, Fabr., which it much resembles; that species, however, has the thorax always testaceous, and the testaceous color of the lateral margins of the elytra is ever clearly limited, which is never the case in *limbalis*.

2. Œ. *scalaris*. Testaceous; three common fasciæ of the elytra black. 21. long. Pennsylvania.

Attica nitidula, Melsh. Catal.

" *scalaris* " MS.

Flattish, oval, testaceous above; head testaceous, sculptured as in the preceding species; eyes deep black; antennæ fuscous, with three basal joints testaceous; palpi, feet and antepectus, testaceous; thorax impunctured with the lateral margins rather broad and concavous: scutellum black-piceous: elytra punctured and rugulose, punctures minute and obsolete; three common, broad irregular, black fasciæ, confluent on the suture, and of which none attains the lateral edges: the front and broadest band is located immediately behind the basal edge, the intermediate and longest one on the middle, and the posterior and rather shortest band is placed before the apex: abdomen and postpectus reddish-brown-piceous: posterior femora strongly incrassated. Closely allied to *sexmaculata*, Illig.

PACHYONYCHUS, Chevr.

P.? *paradoxus*. Pale rufous: lateral two-thirds of the elytra and antennæ blackish. $1\frac{1}{2}$—$1\frac{3}{4}$ l. long. Pennsylvania.

Form altogether that of a *Lema*, Fabr. Head with a few minute scattered punctures: a short impressed cross between the eyes; antennæ rather robust, and somewhat more than half the length of the body, blackish or dark reddish-brown, with three basal joints rufous: second and third joints short, subequal, together not much longer than the fourth: palpi color of the head: thorax like the head, pale rufous, glossy, transverse, much narrower than the elytra, truncate before and behind, with the sides feebly rounded, towards the hind angles more strongly: finely margined: angles, each with a small mammiform tubercle, from each of which arises a single hair: sparsely punctured: transverse basal groove entire, punctured: scutellum color of the thorax, impunctured: elytra oblong-quadrate, with the apex rounded: punctate-striate: interstices minutely and distantly punctured: black, or dark-reddish-brown, with the sutural third rufous: sometimes the apex the same: beneath and feet color of the thorax: posterior femora ordinarily incrassated: penultimate tarsal joint strongly bilobed: posterior nails inflated.

DISONYCHA, Chevr.

D. *abbreviata*. Pale fulvous: eyes, antennæ, three elytral vittæ, exterior edge of the tibiæ and tarsi black. $3\frac{1}{4}$ l. long: $1\frac{3}{4}$ l. wide. Pennsylvania.

Ovate, testaceous, tinged with fulvous: head with scattered minute punc-

tures: three profound round impressions between the eyes placed triangularly: antennæ robust, half the length of the body, black, with the basal joint rufous: mandibles with the tips black; thorax impunctured, each side of the middle with a small, round indentation; scutellum impunctured: elytra distinctly widest behind the middle: much, finely, and profoundly punctured: each elytrum with a broad vitta, and a common sutural one, black, bands equidistantly abbreviated before the apex: feet color of the body: outer edge of the tibiæ blackish: tarsi dusky: posterior femora moderately incrassated: claws simple.

Graptodera, Chevr.

G. *kalmiæ*. Golden-cupreous above: antennæ and beneath black. 1½ l. long. Pennsylvania.

Attica Kalmiæ, Melsh. MS.

Oblong: head golden-green, polished, hardly punctulate: eyes palpi and antennæ, deep black, the last with the two first joints metallic: mouth piceous: thorax color of the head, highly polished: disk impunctured: transverse basal groove profound, entire: scutellum small, black-cupreous: elytra golden cupreous, shining, punctured, punctures placed in irregular series, and rather obsolete towards the apex; beneath dark-cupreous: tibiæ and tarsi fuscous: femora cupreous, glossy, the anterior pair almost black.

Var. a. Head and thorax color of the elytra, with the abdomen black-cupreous. *Attica cuprea*, Melsh. Catal. This species is found on the Laurel, (Kalmia latifolia and glauca) and other plants.

Systena, Chevr.

S. *blanda*. Testaceous: beneath and antennæ black: elytra with a sutural vitta and lateral margins, reddish-brown. 1 l. long. Pennsylvania.

Elongate; head dull rufous, glossy, a few punctures near and between the eyes; labrum, eyes and last joint of the palpi, deep black; antennæ slender, nearly half the length of the body, blackish or brown, with the base of the first joint testaceous; thorax pale testaceous, with the lateral margins more or less blackish or dusky; sides slightly rounded; surface with a few obsolete punctures; scutel reddish-brown piceous: elytra minutely and rather distantly punctured; testaceous, with a common sutural vitta and a lateral one, reddish-brown, more or less obvious; beneath black-piceous; pleuræ, epipleuræ and feet, dull testaceous.

Crepidodera, Chevr.

1. C. *violacea*. Dark violaceous above; antennæ, palpi and feet, yellow-testaceous. 1 l. long. Pennsylvania.

Altica Du Chou, Melsh. Catal.

Oval, violaceous, with a green reflection, shining; head impunctured, very glossy, with the clypeus and inner margins of the eyes green: antennæ half the length of the body, yellowish; labrum, mouth, palpi and feet, color of the antennæ; thorax transverse-quadrate, with the sides feebly rounded; above very minutely and remotely punctured; a distinct transverse basal groove, refracted at each end; scutellum dark violaceous; elytra striate-punctate; beneath black; posterior femora brown-piceous. Not the *Altise Du Chou*.

Var. a. Above purple-violaceous. Sometimes this variety has the face entirely green, the thorax rather rugulose, and the lateral margin green.

Var. b. Like the type, but with large and remote punctures on the thorax.

Var. c. Smaller than the type, brilliant brassy; head brassy-green, shining; thorax with large remote punctures, edges green; elytra indented behind the base towards the suture; lateral edges green; antennæ, feet and beneath, as in the type; posterior femora slightly dusky in the middle.

Altica opima, Melsh. MS. This may prove to be a distinct species. C. *violacea* resembles H. *nana*, Say, but that species is more slender, and the sides of the elytra more parallel.

2. C. *erythropus*. Black; head, antennæ, thorax and feet, rufous. $1\frac{1}{2}$ l. long. Pennsylvania.

Altica rufipes, Melsh. Catal.

" *erythropus* " MS.

Oblong-subquadrate: head rufous, glossy, impunctured; antennæ and thorax color of the head; eyes blackish; thorax rather convex, glossy, impunctured; sides slightly rounded; base with a transverse groove, refracted at the ends; scutellum rufous; elytra black, punctate-striate, the interstices slightly convex; abdomen black: antepectus and feet rufous; epipleuræ dull rufous.

3. C. *fusco-ænea*. Dark brown brassy; antennæ and feet rufous; thorax with an entire basal groove. $1\frac{1}{2}$ l. long. Pennsylvania.

Oblong, brassy brown or blackish, glossy; head impunctured; labrum piceous; palpi dull rufous; antennæ rufous, with the second and third joints subequal; thorax narrower than the elytra, moderately convex, with sides slightly rounded; impunctured, each side of the middle a small obsolete indentation; transverse basal groove entire; elytra finely and distantly punctured; sides obtusely arcuated, with the greatest width about the middle; beneath black, or dark brown, glossy; feet rufous; posterior femora sometimes rufo-piceous.

4. C. *hirtipennis*. Black; head and thorax rufous; elytra testaceous, hirsute, punctate-striate. $\frac{2}{3}$ l. long. Pennsylvania.

Head rufous, minutely and obscurely punctured; eyes black; antennæ testaceous, with the second, third and fourth joints short, subequal, the second thickened; palpi black; thorax rufous, transverse, moderately convex, with the sides feebly rounded; densely punctulate; transverse basal groove slight, entire; elytra dull testaceous, moderately convex; sides slightly arcuated; deeply punctate striate, punctures furnishing short, whitish setæ, frequently with a common, obsolete, dusky fascia on the middle; abdomen and postpectus blackish; antepectus and feet, pale rufous; posterior femora sometimes dusky.

5. C. *atriventris*. Dull rufous; abdomen and postpectus blackish; elytra striate-punctate. $\frac{1}{2}$ l. long. Pennsylvania.

Short-ovate, dull rufous, glossy; head impunctured; palpi with the last joint dusky; antennæ slender, testaceous; eyes black; thorax short transverse, narrower than the elytra, with the sides feebly rounded; moderately convex; very minutely punctured; transverse groove profound, refracted at both ends; elytra convex, striate-punctate; punctures obsolete towards the apex; sides arcuated; beneath blackish, or dark reddish brown; feet testaceous.

Psylliodes, Latr.

P. *punctulata.* Brassy black; thorax much and finely punctured; elytra striate-punctate; tibiæ and tarsi pale brown. 1 l. long. Pennsylvania.

Form of *striolata*, Illig. Brassy black; head impunctured, rather opake; palpi dull testaceous; antennæ slender, fuscous, the three basal joints testaceous; 10-jointed; thorax slightly wider at base than at apex, with the sides feebly rounded; finely and rather densely punctured; scutellum minute; elytra narrowed behind and before, striate-punctate, the punctures small; beneath and femora, blackish-piceous; tibiæ and tarsi, dull pale brown, the former dusky towards their tips; posterior femora much incrassated; posterior tarsi inserted before the apex of the tibiæ.

Aphthona, Chevr.

A. *rubicunda.* Ferruginous; eyes and suture of the elytra blackish. 1 l. long. Pennsylvania.

Altica rubicunda, Melsh. Catal.

Oblong, ferruginous; head impunctured, glossy, darker than the thorax, labrum piceous; palpi black; eyes blackish; antennæ color of the thorax, four or five terminal joints dusky; thorax narrower than the elytra, transverse-quadrate, with the sides feebly rounded; minutely and distantly punctured; each side of the middle with a small, obsolete, subbasal indentation: scutellum piceous; elytra rather convex with the sides arcuated; rugulose, minutely and distantly punctured, with the punctures rather equidistant; suture indeterminately blackish; beneath and feet, color of the elytra and thorax; posterior tarsi ——. Perhaps referable to the genus *Thyamis*, Stephens.

Thyamis, Steph.

1. T. *melanura.* Fuscous; basal joints of the antennæ and four anterior feet, dull testaceous. $1\frac{1}{4}$ l. long. Pennsylvania.

Altica melanura, Melsh. Catal.

Oblong-subovate, dull reddish-brown, glossy; head impunctured, pitchy-blackish, tinged with rufous; palpi and eyes black, the first piceous; antennæ fuscous, with the three first joints testaceous or dull rufous; thorax narrower than the elytra, transverse-subquadrate, the sides slightly rounded; minutely rugose: scutellum piceous; elytra finely and distantly punctured and rugulose; rather convex, with the sides hardly arcuated except behind the middle; beneath blackish or dark reddish-brown; four anterior feet testaceous; posterior femora pitchy-brown, with their tarsi dull testaceous, their tibiæ sometimes of the same color; first joint of the posterior tarsi half the length of the tibiæ.

2. T. *testacea.* Testaceous; beneath dull pale reddish-brown; antennæ long. $\frac{2}{3}$ l. long.

Ovate, above testaceous: head impunctured, shining; eyes and terminal joint of the palpi, black; labrum piceous; antennæ long, slender, testaceous, with the terminal joints dusky; second and third joints, as in the preceding species, almost equal; thorax narrower than the elytra, subquadrate, with the sides slightly, and basal edge obtusely, rounded; very minutely punctured; scutellum, color of the elytra, which are rather paler than the thorax; rugulose, finely and distantly punctured; sides arcuated; moderately convex; beneath dull reddish-

brown; feet pale testaceous; posterior tibiæ very slender; posterior tarsi half the length of their tibiæ. Found in Pennsylvania.

DIBOLIA, Latr.

D. *ærea*. Green above; antennæ, tibiæ and tarsi, testaceous. 1¼ l. long. Pennsylvania.

Altica ærea, Melsh. Catal.

Oblong-ovate, green and slightly brassy above, shining; head retracted; labrum, mouth, palpi and antennæ, testaceous, or rufo-testaceous; thorax obsoletely and distinctly punctulate; sometimes almost blackish: elytra finely striate-punctate, with the punctures obsolete towards the apex: beneath and posterior femora, black, shining; abdomen sometimes reddish-brown; four anterior feet testaceous, or rufo-testaceous, their femora sometimes dusky; posterior tibiæ and tarsi color of the anterior one.

CHÆTOCNEMA, Steph.

1. C. *minuta*. Brassy-black above; basal joints of the antennæ tawny-testaceous; elytra punctate-striate. ⅛ l. long. Pennsylvania.

Altica minuta, Melsh. MS.

Ovate, brassy-black above, shining: head minutely and confertly punctured; rather opake; labrum and palpi, black, glossy; antennæ short, dark fuscous, with two or three, and sometimes four basal joints dull or tawny-testaceous; thorax very minutely and rather distinctly punctured; transverse, convex, with the sides and base obtusely rounded: elytra convex, with the sides arcuated; strongly punctate-striate; exterior interstices convex: beneath blackish, slightly brassy, distinctly and remotely punctured; femora brassy-black; tibiæ and tarsi dull or dusky testaceous, sometimes the apical half the tibiæ blackish.

2. C. *semichalchea*. Head and thorax brassy-black; elytra black, punctate-striate; basal joints of the antennæ, tibiæ and tarsi, dull testaceous. ⅛ l. long. Pennsylvania.

Ovate, glossy: head brassy-black, with a few, small, scattered punctures between and near the eyes; labrum and palpi, dark dull reddish-brown; antennæ fuscous, with four basal joints testaceous; thorax brassy-brown or blackish, transverse, moderately convex, with the base obtusely rounded; the sides almost straight; finely wrinkled, and rather densely punctulate; elytra black, punctate-striate; the exterior interstices convex; sides arcuated; moderately convex; beneath black, with the apical segments of the abdomen rugose-punctured; femora blackish or dark reddish-brown, glossy; tibiæ and tarsi, dull testaceous.

3. C. *pulicaria*. Head and thorax brassy-black; elytra black, with a green tinge, punctate-striate; basal joints of the antennæ, tibiæ and tarsi, testaceous. ⅛ l. long. Pennsylvania.

Altica pulicaria, Melsh. Catal.

Ovate; head brassy-black, hardly punctulate, opake; labrum and palpi, dull rufo-testaceous; antennæ rather long, slender, fuscous, with four basal joints testaceous; thorax color of the head, transverse, with the sides slightly rounded; moderately convex, scarcely punctulate; elytra black,

tinted with green; moderately convex; punctate-striate; outer interstices convex; sides arcuated; beneath blackish, sparsely punctured; femora chestnut-brown; tibiæ and tarsi, dull testaceous or rufous.

Sphæroderma, Steph.

S.? *insolita*. Rust-red, shining; tip and basal joints of the antennæ, testaceous; thorax narrow: elytra broad. ¾ l. long. Pennsylvania.

Light ferruginous shining; head impunctured; tips of the palpi black; antennæ moderate, slightly thickened towards the apex, with the two apical joints testaceous, the four preceding black, and the five basal ones testaceous; second, third and fourth joints short, subequal, the second thickened; thorax much narrower than the elytra, transverse, convex, with the base and sides obtusely rounded; impunctured and highly polished: elytra broad, subquadrate, convex, highly polished, with effaced series of very minute punctures; humeral angles prominent: beneath color of the elytra; feet paler; posterior femora moderately incrassated; posterior tibiæ simple, with a small spur at tip; penultimate tarsal joint strongly bilobed. This insect possesses entirely the form of a *Eumolpus* and though a true *Haltica* Geoffr., it cannot remain in the subgenus *Sphæroderma*, Steph.

Chrysomelidæ, Leach.

Metachroma, Chevr.

1. M. *thoracicus*. Dull rufous; elytra black, punctate-striate. 1 2-5ths l. long. Pennsylvania.

Eumolpus thoracicus, Melsh. Catal.

Dull dark rufous: head finely punctured; a longitudinal impressed frontal line, not crossing a transverse line between the eyes, both lines sometimes obsolete; palpi and antennæ paler than the head, the last with the five terminal joints subequal, larger than the preceding ones; eyes black: thorax glossy, minutely and distinctly punctured; an obsolete indentation each side towards the posterior angles; scutellum rufous, impunctured; elytra black, tinted with rufous, particularly towards the apex; punctate-striate, less deeply towards the apex; humeral tubercles impunctured: beneath dusky rufous; feet paler. Closely allied to *canellus*, Fabr.

Var. a. Rufous; elytra slightly tinted with black.

2. M. *melanura*. Black; head, antennæ, apex of the elytra and tarsi, dull rufous. 1 3-5ths l. long. Pennsylvania.

Eumolpus melanura, Melsh. MS.

Black: head dull rufous, densely punctulate; longitudinal impressed line obsolete, transverse line between the eyes angulate, distinct; mouth, palpi and antennæ, rufous, the last formed as in the preceding species; thorax black, with the anterior edge obsoletely piceous; glossy, very finely and distantly punctured; scutellum dull rufous, impunctured: elytra black, with the basal edge, humeral tubercles and apical third, dull pale rufous; punctate-striate, punctures and striæ obsolete or almost absent towards the apex; beneath, femora and tibiæ, deep black; knees and tarsi, dull rufous. Size and form entirely of 4-*notata*, Say, of which it may prove a variety.

EUMOLPUS, Fabr.

1. E. *longipes*. Fuscous, clothed with a dense ashy-pubescence; feet long, 2 l. long. Pennsylvania.

Brown, densely ashy-pubescent: head dark brown, densely and deeply punctured, ashy-pubescent; a longitudinal impressed frontal line: labrum piceous: antennæ slender, long, rather filiform, fuscous, with three or four basal joints testaceous; eyes deep black; palpi dull testaceous: thorax longer than wide, much narrower than the elytra, slightly wider behind than before, subcylindric, with the sides obtusely rounded; densely and profundly punctured: scutellum small, densely ashy-pubescent: elytra with shallow punctured striæ, punctures close-set; interstices transversely wrinkled, minutely punctured: outer basal angles prominent; apex rounded; beneath and feet blackish-brown, ashy-sericeous or finely ashy-pubescent; the feet more than ordinary long; posterior and intermediate femora at base, testaceous.

2. E. *villosulus*. Ferruginous, pubescent; antennæ, palpi and feet, testaceous-yellow. $1\frac{2}{3}$ l. long. Pennsylvania.

Eumolpus villosus, Melsh. Catal.

Ferruginous: very minutely and densely rugose, clothed with minute, short hairs, with an obtuse, longitudinal frontal indentation; antennæ as in the preceding species; yellowish; labrum and palpi similarly colored; eyes deep black: thorax transverse, wider at base than at apex, with the sides rounded, middle of anterior edge raised; rugulose and clothed like the head; obtusely indented on the middle of each lateral margin and in front of the scutel: elytra lighter and less pruinose than the head and thorax; pilose like the thorax, with the hairs more distinct; with fine and somewhat obsolete punctured striæ; interstices fine, convex; exterior basal angles moderately prominent; apex acutely rounded: feet testaceous, or testaceous-yellow. It belongs perhaps to Chevrolat's subgenus *Myochrous*.

Var. ? a. Smaller; head, thorax and elytra light rust-red, the last with a common, indeterminate black spot on the middle. *Eumolpus plagiatus*, Melsh. MS.

3. E. *pubescens*. Cupreous, sparsely ashy-pubescent; head with a profound frontal indentation. $1\frac{1}{2}$—2 l. long. Pennsylvania.

Eumolpus pubescens, Melsh. Catal.

Dull cupreous, or brassy-brown, sparsely ashy-pubescent: head densely punctured, with a large, profound indentation on the front; labrum and palpi, black-piceous; eyes and antennæ black, the latter moderately long, with five terminal joints thicker than the preceding ones, which are brassy; second joint robust; joints third till sixth inclusive, equal; thorax transverse, feebly waved behind, with the front slightly advanced in the middle; sides rounded; rather wider behind than before: minutely punctured, densely transversely wrinkled: scutellum obtuse-triangular: elytra wider at base than the thorax, narrowed to the apex, which is rounded; with obscure and irregular series of small punctures; transversely rugulose; humeral tubercles prominent: beneath rugosely punctured: feet dull cupreous, tinted with greenish.

4. E. *curtipennis*. Brassy-brown; elytra short; head with a conspicuous frontal indentation. 1 l. long. Pennsylvania.

Brown-brassy, shining: head finely punctured, with an obvious frontal indentation, anterior to which is a transverse arcuated impressed line: antennæ, eyes, labrum and palpi, as in the preceding species: thorax comparatively large, as wide in the middle as the elytra, contracted and truncate behind, in front rounded and advanced in the middle; sides rounded; minutely punctured and rugulose: scutellum rugulose: elytra short, with the sides feebly arcuated; rugulose, with obsolete series of punctures, which are much effaced towards the apex, the latter rounded: beneath and feet dark-brassy, rugose-punctured. Allied to the preceding species.

Cryptocephalus, Geoffr.

1. C. *M. Nigrum.* Black; thorax and elytra testaceous, the former with a black character like the letter M, the latter with an irregular vitta and several spots, black. 1½ l. long. Pennsylvania.

Pachybrachis M. *Nigrum?* Dej. Catal.

Strongly punctured: head black, with the orbits of the eyes and a spot on the clypeus, testaceous; labrum pale, or piceous; antennæ blackish, with four basal joints testaceous: thorax less strongly punctured than the elytra, testaceous, with a black character, formed like the letter M; edges black: scutellum testaceous, with the lateral margins black: elytra strongly and irregularly punctured, some of the punctures are arranged in irregular series; testaceous, with an irregular, black vitta, abbreviated before the apex; lateral submargins each with three black spots, of which the anterior one is placed on the humerus, the posterior one is confluent with the vitta: beneath deep black; pygidium black, each side with a pale spot: feet blackish, with the femora and tibiæ varied with white. This species may prove to be a variety of the *viduatus*, Fabr.

2. C. *atomarius.* Dark fuscous, speckled with whitish; face white; femora varied with white. 1¼ l. long. Pennsylvania.

Cryptocephalus historio, Melsh. Catal.

" *atomarius*, Melsh. MS.

Black, or dark-brown: head punctulate; face white, with the sutures black; antennæ fuscous, with three or four basal joints lurid: thorax densely punctulate, varied with a few dull testaceous spots; anterior edge and an apical medial line similarly colored: scutellum black, with a testaceous spot: elytra irregularly and profoundly punctured, punctures ranged in irregular series; varied with numerous small lurid spots; pygidium immaculate: beneath black: feet black, varied with white.

Var. a. Black; head almost immaculate; labrum and a double spot in front of the antennæ, white; thorax almost immaculate; elytra with only a few small lurid spots; femora at tip whitish. *Cryptocephalus conspersus*, Melsh. Catal. This is probably the female of the preceding species.

3. C. *trinotatus.* Deep black; thorax with the lateral and anterior margins and three spots, sanguineous: front with two similarly colored spots. 1⅔—2 l. long. Pennsylvania.

Cryptocephalus trinotatus, Melsh. Catal.

Deep black: head densely punctulate, with two reddish-fulvous spots between the eyes; antennæ and labrum, black: thorax confluently punctured, with the anterior edge, lateral margins, two oblique, dilated, abbreviated lines

at base, and one at apex, reddish-fulvous: scutellum black; elytra immaculate, densely and coarsely punctured: pygidium, beneath and feet, deep black, immaculate, ashy-sericeous.

4. C. *castus*. Deep black; thorax with the lateral margins and two spots at base, fulvous; elytra punctate-striate, each with a testaceous spot at apex. 1¼ l. long. Pennsylvania.

Cryptocephalus castus, Melsh. MS.

Deep black: head opake, impunctured, spotless; labrum and antennæ, deep black, the latter with the first joint shining: thorax impunctured, rather opake, with the lateral margins and two oblique, dilated, abbreviated lines at base, fulvous: scutellum black: elytra deeply punctate-striate; interstices impunctured, somewhat convex; humeral tubercle small, prominent; suture raised immediately behind the scutel, each elytrum with a whitish spot at apex; beneath and feet deep black, immaculate; feet shining.

Var. a. Lateral thoracic margins broadly fulvous, without the basal spots.

5. C. *æsculi*. Black, thorax with the lateral margins and an abbreviated line at tip, dull red; elytra varied with white. 1½ l. long. Pennsylvania.

Cryptocephalus Aesculi, Melsh. Catal.

Black; head confluently and obscurely punctulate; orbits of the eyes very faintly rufous; labrum white; antennæ dull brown, the basal joints lurid; thorax deusely and somewhat coarsely punctured; lateral margins dull red; a longitudinal medial line originating at apex and abbreviated behind the middle, dull fulvous; scutellum black; elytra ordinarily punctured, varied with whitish; basal edge white; pygidium and beneath, deep black, spotless; feet black, with the anterior femora maculate with white.

Var. a. Head, thorax and feet spotless; elytra with the basal edge and a few small spots towards the apex, white; femora immaculate. Perhaps the female.

6. C. *pectoralis*. Ferruginous, maculate with black; pectus black. 1½ l. long. Pennsylvania.

Light ferruginous: head punctulate; face color of the thorax, with a longitudinal black line between the eyes, the latter black; antennæ color of the face; labrum and feet testaceous; thorax punctulate, with about five obsolete black spots: scutellum black: elytra ordinarily punctured, indeterminately maculate with black; striæ black; abdomen ferruginous; pectus black, or dusky; femora with a small brownish spot.

7. C. *hepaticus*. Ferruginous, sometimes sparsely maculate with black; elytra simply and densely punctured. 1—1½ l. long. Pennsylvania.

Cryptocephalus hepaticus, Melsh. Catal.

Robust, pale ferruginous; beneath dusky; head densely punctulate, sometimes faintly clouded with brownish; eyes black; antennæ moderate, color of the head; thorax densely punctured, sometimes obsoletely clouded with black; scutellum piceous; elytra densely punctured, without any of the ordinary longitudinal rugæ or raised lines; sometimes with four or five spots before the tip, and one on the humerus, black; pygidium dusky in the middle; abdomen at tip dull testaceous; feet rufo-testaceous, or testaceous; sometimes with a brown spot.

8. C. *tridens*. Black; antennæ and feet testaceous; head varied with white; thorax with the lateral margins broadly white, each with a large subquadrangular black spot; elytra varied with white. 1½ l. long. Penn.

Cryptocephalus tridens, Melsh. Catal.

Black: head irregularly punctured, varied with white; antennæ and feet testaceous-yellow; labrum white; thorax profoundly and irregularly punctured, with the lateral margins broadly white, each with a large subtrapezoidal blackish spot: scutellum black: elytra deeply and irregularly punctured, some of the punctures, towards the middle and sides, ranged in irregular series, their interstices convex: each elytrum with a cruciform spot and apex, white; pygidium varied with white; epipleuræ and margins of the abdomen, white. Basal edge of the elytra most frequently, and occasionally an abbreviated longitudinal line at the middle of the thoracic apex, white.

9. C. *flavicornis*. Black; antennæ, feet, lateral margins and two basal spots of the thorax, yellowish; elytra, each with two similarly colored spots. 1¼ l. long. Pennsylvania.

Black; head profoundly punctured; eyes black, with the superior and anterior edges, and labrum, white; antennæ and feet, testaceous-yellow: thorax profoundly and inequally punctured; lateral margins, lateral third of anterior and posterior edges, and two dilated short basal lines, testaceous, lines forming junctions at right angles with the inner ends of the colored basal edge; scutellum black: elytra deeply, finely and inequally punctured, towards the lateral margins irregularly punctate-striate; a lateral linear spot a little before the middle and apex, whitish; pygidium each side with a small whitish spot.

10. C. *luteipennis*. Black; elytra luteous, with the lateral and basal edges and suture, black; thorax with the lateral margins and two basal spots whitish. 1¾ l. long. Pennsylvania.

Cryptocephalus fasciatus and *binotatus*, Melsh. Catal.

Robust, black: head sparsely punctulate, with a longitudinal impressed frontal line; clypeus white, a similarly colored transverse spot between the eyes; antennæ fuscous or blackish, with the five first joints and mouth, testaceous-yellow; thorax sparsely, very minutely and obscurely punctured, glossy; lateral margins narrowly, and a spot each side of the middle before the base, testaceous, tinted with yellow: scutellum black; elytra luteous or ochreous, with the suture, lateral and basal edges and humeri, black; behind the middle with a common, arcuated dusky fascia, being sometimes formed of spots, and sometimes entirely wanting; finely punctate-striate: interstices flat, impunctured; pygidium with two small whitish spots at tip: feet black, with the tarsi fuscous; coxæ of anterior feet each with a white spot; a similar spot each side of the anterior margin of postpectus.

11. C. *mutabilis*. Dull rufous; thorax with the anterior and lateral margins white; base, lateral margins and apex, the same, the two former maculate with blackish spots. 2¾ l. long. Pennsylvania.

Cryptocephalus nobilis, Melsh. Catal.

Dull rufous, shining; head sparsely punctured and impressed on the front; orbits, clypeus and labrum white; antennæ pale brown, with five basal joints testaceous; thorax very minutely and distinctly punctured, polished, with the

front and side margins whitish, broadly at the anterior angles; edges dusky: scutellum dusky; elytra darker than the thorax, shining, with the basal and lateral margins broadly whitish, the latter abbreviated before the apex, and containing three blackish spots, of which one is located on the humeral tubercle; middle of the base with a large dark reddish spot; apex whitish; punctate-striate; pygidium strongly punctured, with the apex white; beneath blackish, tinted with rufous; two or three apical segments of abdomen and feet rufous. This species varies much, and it is difficult to determine which is the type.

Var. a. As in the preceding; thorax with two oblique, abbreviated whitish basal lines; elytra with the lateral margins not abbreviated, maculate with rufous.

Var. b. Smaller than the type; head black, marked with white as in the type; thorax black, highly polished and scarcely punctulate, with the front and side margins as in the type; a transverse series of four impressed points each side of the middle towards the apex; elytra black, punctate-striate; basal edge, apex and lateral margins, white, inner side of the latter bisinuate; humeral tubercles black; feet as in the type; antennæ color of the feet; beneath black; a large quadrate white spot in the middle at base of the abdomen. *Cryptocephalus charus*, Melsh. MS. The white basal abdominal spot is present in almost every specimen.

12. C. *clathratus*. Black; head, femora and thorax fulvous, the latter with the lateral margins and two basal spots, yellowish; elytra with about sixteen yellowish spots. $1\frac{3}{4}$ l. long. Pennsylvania.

Cryptocephalus clathratus, Melsh. Catal.

Head pale fulvous, scarce punctulate; a slight longitudinal impressed line between the eyes; antennæ fuscous, with the five first joints testaceous; eyes plumbeous; thorax fulvous, with two oblique, dilated, abbreviated yellow basal lines; lateral margins yellow; posterior and lateral edges blackish; surface obscurely punctulate; scutellum piceous: elytra deep black, punctate-striate, with about sixteen yellow spots, placed in four transverse series, spots in the basal series six, all linear, eight spots in the two intermediate series, and two at apex; pygidium strongly and coarsely punctured: beneath dusky, tinted with rufous; a whitish spot on the middle of the abdominal base; femora fulvous; tibiæ and tarsi color of the abdomen.

Var. a. Rufous or fulvous; thorax immaculate; elytra black, with about 10 yellow spots. *Cryptocephalus pulcher*, Melsh. Catal.

13. C. *sulphuripennis*. Black; elytra pale yellow, maculate with black: thorax with the lateral margins and two basal spots, yellowish; feet pale fulvous. 2 l. long. Pennsylvania.

Head black, sparsely punctulate; orbits, labrum and clypeus, whitish: antennæ yellowish, dusky at tip; thorax black, distantly punctulate, with the lateral margins and two oblique basal spots, yellowish; scutellum black; elytra pale yellow, with three transverse rows of small black spots, apical row formed of four spots, and each of the two others six: punctate-striate, punctures dusky; pygidium black, immaculate, coarsely punctured; beneath deep black: feet pale rufous.

14. C. *formosus*. Deep black; thorax with the lateral margins and two

basal spots, fulvous; elytra with thirteen fulvous spots. Nearly 2 l. long. Pennsylvania.

Deep black: head with a longitudinal impressed frontal line; punctulate; maculate with whitish; antennæ blackish, with three or four basal joints yellowish: thorax polished, hardly punctulate, with the anterior and posterior angles, and two oblique basal spots, yellowish; anterior edge similarly colored; elytra profoundly punctate-striate, with thirteen fulvous spots, ranged in transverse rows; two of the spots are at apex, three at base, and in each of the two intermediate rows four; beneath, feet and pygidium, deep black, immaculate; coxæa of the two anterior feet with a white spot; abdominal basal spot present.

15. C. *hamatus*. Black; head, thorax, feet, and lateral and apical margins of the elytra, fulvous; pygidium and tip of the abdomen, similarly colored or rufous. 1 l. long. Pennsylvania.

Head pale fulvous, distantly punctulate: eyes plumbeous, varied with golden; antennæ color of the thorax, dusky at tip; thorax fulvous, varying in depth of color; sometimes with the lateral margins and two obliqne basal spots, faintly yellowish; surface densely and minutely punctured; scutellum piceous; elytra black, punctate-striate; lateral and and apical margins with a yellowish vitta, curving a little upon the first entire innerspace; base with two short fulvous lines, the one at the suture and the other in the middle; lateral and apical edges, black; basal edge sometimes yellowish: beneath black; feet, tip of the abdomen and pygidium, fulvous; abdominal basal spot present.

16. C. *pretiosus*. Black, shining; head and thorax maculate with white; elytra punctate-striate, with an abbreviated fascia, linear spots at base, and apex, fulvous. 1¾ l. long. Pennsylvania. Very rare.

Deep black: head rather strongly punctured; a longitudinal profoundly impressed line between the eyes; orbits and clypeus white; antennæ blackish, with five basal joints testaceous-yellow: thorax highly polished, very minutely and distantly punctured; a spot at each of the angles, and two oblique subovate basal spots, white; elytra finely punctate-striate, with a broad fascia in the middle, somewhat widely interrupted at the suture, apex and six short lines at base, fulvous or yellowish fulvous; exterior basal line or spot confluent with the fascia: pygidium, beneath and feet, deep black; coxæ of the anterior and middle feet each with a white spot; abdominal basal spot present.

MONACHUS, Chevr.

M. *viridis*. Dark green; antennæ, mouth, lateral margins of the thorax and feet yellowish. ⅔ l. long. Pennsylvania.

Cryptocephalus smaragdinus, Melsh. MS.

Dark green, slightly brassy; head obscurely and very minutely punctured; a slight frontal impression; clypeus, labrum and mouth, yellowish; antennæ similarly colored, with the tip dusky; as long as the thorax, somewhat thickened towards the tip, with the joints short; thorax transverse, wider at base than at apex, with the sides rounded; truncate before and slightly waved behind; posterior angles acute; surface hardly punctulate, with the lateral margins dull fulvous; elytra shining, finely and obsolctely striate-punctulate; punctures almost wanting toward the apex; feet yellowish-fulvous; pygidium, abdomen,

and postpectus, black, the latter tinted with reddish; antepectus color of the feet.

Var. a. Head and thorax dull rufous.

GASTROPHYSA, Chevr.

1. G. *ænea*. Blue, slightly brassy; antennæ black, with five basal joints testaceous. 2 l. long. Pennsylvania.

Eumolpus æneus, Melsh. Catal.

Blue, tinged with greenish, slightly brassy; head deeply and distantly punctulate, sometimes with an obsolete longitudinal frontal impression; antennæ black, with five or six basal joints dull testaceous; palpi piceous; thorax deeply and densely punctulate: scutellum impunctured: elytra much punctulate, with the punctures longer than wide, and ranged in irregular and approximate series; beneath and femora, greenish black, slightly brassy; tibiæ and tarsi, blackish, or dark reddish-brown; abdomen sparsely punctulate.

Var. a. Elytra cupreous.

2. G. *cyanea*. Blue; beneath and feet black. 2 l. long. Pennsylvania.

Chrysomela Raphani, Melsh. Catal.

Cyaneous, shining: head punctured; an obsolete longitudinal impressed frontal line; labrum and palpi piceous: antennæ black, or dark brown, with four basal joints glabrous, shining; thorax strongly tinged with green; profoundly and densely punctulate: scutellum green: elytra punctured like the thorax, with a green reflection: beneath blackish; feet similarly colored, with a bluish or greenish reflection.

PHÆDON, Meg.

P. *viride*. Greenish, or dark fuscous brassy; feet piceous. $1\frac{1}{2}$ l. long. Pennsylvania.

Eumolpus viridis, Melsh. Catal.

Ovate, greenish, or dark fuscous brassy, rarely cupreous; shining; head deeply punctulate, with a transverse, arcuated impressed frontal line: antennæ blackish or dark brown; thorax very minutely and obsoletely punctured; scutellum blackish, impunctured: elytra striate-punctate, punctures small, and the series remote: beneath blackish, with the abdomen densely punctured; feet blackish-piceous, often brassy.

Erotylidæ.

TRITOMA, Fabr.

T. *basale*. Black; basal half of the elytra rufous. $1\frac{3}{4}$ l. long. Pennsylvania.

Black, shining; head obscurely punctulate; antennæ black; thorax much and rather distinctly punctulate: scutellum piceous: elytra with the basal half rufous: finely punctate striate; beneath black, distantly and distinctly punctulate: feet black. Differs from *pulchrum*, Say, which it much resembles, in being more numerously and distinctly punctulate, and in having the basal half of the elytra transversely rufous, the rufous color extending as far down on the lateral margins as it does on the suture, whilst in *pulchrum* the rufous color occupies only a short space behind the humeri, and extends down the suture, sometimes to the apex.

Triplax, Payk.

T. *fasciata.* Yellowish; head, antennæ and base and apex of the elytra black. 2¼ l. long. Alabama.

Head distinctly and not densely punctulate; black, posteriorly tinted with rufous; antennæ black; palpi, feet and beneath testaceous-yellow; thorax similarly colored; punctured like the head: scutel color of the thorax; elytra broadly black at base and apex, with a broad, common, testaceous-yellow fascia; finely punctate-striate.

Endomychidæ, Leach.

Lycoperdina, Latr.

1. L. 4-*guttata.* Black; elytra with four rufous spots; thorax rufous, with the disk black. 1⅔ l. long. Pennsylvania.

Endomychus 4-*guttatus*, Melsh. Catal.

Head black, shining, sparsely and obscurely punctulate; labrum and mouth dull fuscous; antennæ black; thorax minutely and obscurely punctured; rufous most frequently with a broad, entire, black dorsal vitta; glossy; edges dusky; scutellum black; elytra similarly colored, each with a large subhumeral spot, and another behind the middle, rufous or fulvous; obscurely punctulate; postpectus, feet and abdomen, blackish, the latter with the tip dull pale brown; tarsi similarly colored; antepectus rufous.

2. L. *lutea.* Testaceous; eyes black. 1¾ l. long. Pennsylvania.

Endomychus luteus, Melsh. Catal.

Testaceous, glabrous or rather thinly clothed with minute short hairs, arising from very minute punctures; antennæ darker than the head; eyes black; thorax with the lateral margins pale testaceous, pellucid; femora pale testaceous; tibiæ and tarsi darker.

3. L. *pilosa.* Pale ferruginous, finely pubescent. 1⅔ l. long. Pennsylvania.

Endomychus pilosus, Melsh. Catal.

Palpi ferruginous, yellowish-pubescent; head glossy, indistinctly punctulate, hardly pubescent; eyes black: antennæ color of the head, with the clava darker: thorax indistinctly punctulate, slightly pubescent, glossy, with the lateral margins lighter than the disk: elytra obscurely punctulate, yellowish-pubescent, with the suture sometimes dusky; beneath and feet as above.

This species and the preceding one may be referred to the subgenus *Epipocus* of Dejean's Catalogue.

4. L. *crassicornis.* Rufous; disk of the thorax, a fascia and tip of the elytra, black; clava of the antennæ much dilated. 1½ l. long. Pennsylvania.

Endomychus crassicornis, Melsh. Catal.

Rufous, glossy, obscurely and distantly punctulate, glabrous: head frequently dusky: antennæ yellowish-rufous, with the three terminal joints greatly dilated in ♂ s, less in ♀ s: thorax with the disk black; scutellum black: elytra with a broad common fascia on the middle, apex and anterior portion of the suture, sometimes its entire length, black: beneath color of the elytra; feet color of the antennæ.

Var. a. Smaller; apex of the elytra and scutellum color of the elytra.

5. L. *apicalis*. Testaceous-yellow; elytra black, with the apex testaceous. 1 l. long. Pennsylvania.

Endomychus fuscus? Melsh. Catal.

Testaceous-yellow, glossy: head and thorax scarcely or very indistinctly punctulate, the former tinted with rufous, the latter with longitudinal, anteriorly abbreviated basal lines: scutellum black: elytra black, with the apex indeterminately testaceous; obscurely punctulate: beneath and antennæ color of the thorax: feet testaceous, sometimes colored like the abdomen.

Var. a. Entirely pale testaceous. *Endomychus pallidus*, Melsh. MS. Doubtless immature specimens.

Coccinellidæ Leach.

COCCINELLA, Linné.

1. C. *seriata*. Pale yellow above; head, disk of the thorax, suture and three submarginal spots of the elytra, beneath and femora, black; tibiæ and tarsi testaceous. 2½ l. long. Pennsylvania.

Coccinella suturalis, Melsh. Catal.

Ovate: head deep black, immaculate; labrum, palpi and antennæ, testaceous, the latter with the clava dusky: thorax pale yellow, tinged with rosaceous; disk and middle of the base, black: elytra color of the thorax, each with a series of three large, irregular, submarginal black spots, the first of which is hatchet-shaped, and placed on the humerus; the second spot, which is transverse-oval, is joined to the first by a short neck, and to the third by a short narrow line; the third spot is longitudinal-oval; suture with a bisinuate black vitta, terminating a little before the apex, where it is joined to the tip of the posterior spot: beneath and femora, black; tibiæ and tarsi testaceous, the former with the apical half dusky; abdomen with the lateral margins rosaceous. Allied to *tibialis* and *parnethesis*, Say.

2. B. *concinnata*. Whitish above; head and thorax maculate with black; disk of elytra fuscous; beneath blackish; feet yellowish. 2¼ l. long. Pennsylvania.

Coccinella concinnata, Melsh. MS.

Head white, tinged with yellowish, with two longitudinal black lines, interrupted in the middle by the prevailing color; eyes black; mouth and palpi yellowish, the latter with the tip dusky; antennæ testaceous: thorax color of the head, densely and indistinctly punctulate, and with about seven large spots and two geminate punctures, black; spot on each of the lateral submargins suboval, one on each side of the middle at base sublunate, between which and the lateral spot is placed the double puncture or dot; two anterior dorsal spots oblique, oval: posterior dorsal spot small, oval, and posted with the anterior ones triangularly: scutellum blackish: elytra whitish, stronger tinted with yellowish than the thorax, with the disk brown, tinted with reddish, and very irregular in its outline, containing in its middle each side and near the suture a pale yellowish spot; densely and more distinctly punctulate than the thorax: beneath blackish, with the abdomen strongly tinted with reddish; feet yellowish-rufous.

Var. a. Head black, with three longitudinal white lines; thorax white, with an irregular black fascia: two short, longitudinal white lines in the middle at

base; beneath and femora black; tibiæ and tarsi pale testaceous. *Coccinella pini*, Melsh. MS.

3. C. *venusta*. Red above; thorax with four, and elytra with ten spots, black; beneath and feet, black. $3\frac{1}{4}$ l. long. Pennsylvania.

Coccinella venusta, Melsh. Catal.

Hemispheric, punctulate, above dull red; head distinctly punctured, black, with the orbits and a transverse frontal line, dull red; labrum piceous, edged with dull red; antennæ testaceous, with the tip dusky: thorax with four very oblique black spots, of which the two basal ones are large, clavate or sublanceolate, and united at their base; dorsal spots small, ovate: scutellum black, triangular: elytra more obviously punctulate than the thorax each with three submarginal, and two subsutural, large black spots, one of the latter resembles an inverted comma; suture black from a little behind the middle to near the apex, where it is dilated and becomes confluent with the terminal submarginal spot; pleuræ and epipleuræ, testaceous yellow; pectus and abdomen, black; feet similarly colored.

4. C. *modesta*. Black; elytra pale fulvous, each with six black dots; thorax with the lateral and anterior margins and two oblique, abbreviated lines, white; head with a white frontal fascia. $2\frac{2}{3}$ l. long. Pennsylvania.

Oblong: head black, with a broad, anteriorly tridentate, white frontal fascia; antennæ and palpi dull testaceous, with the tips black or dusky: thorax deep black, and like the head shining, the anterior and lateral margins narrowly white; a short, oblique line each side of the middle similarly colored: scutellum black: elytra fulvous, each with six black dots, placed 1, 2, 2, 1, of which the posterior two are rather larger than the others: beneath and feet, black; postpectus each side at tip and base with a dull white spot.

BRACHIACANTHA, Chevr.

1. B. 4-*punctata*. Deep black: elytra with four fulvous spots; tibiæ and tarsi dull testaceous. $1\frac{2}{3}$ l. long. Pennsylvania.

Coccinella 4-*punctata*, Melsh. Catal.

Deep black, shining, finely and densely punctured: head immaculate; antennæ dull testaceous: thorax immaculate; anterior angles obscurely piceous: scutellum triangular: elytra, each with a subrotund spot at base on the inner angle, and another similarly shaped and sized one a little before the apex, and nearer to it than to the suture, fulvous: beneath and femora, black; knees, tibiæ and tarsi, dull or dusky testaceous; prickle of the anterior tibiæ robust, prominent.

2. B. *fulvopustulata*. Deep black above; front, lateral margins of the thorax, and four spots on each elytrum, fulvous; tibiæ and tarsi, testaceous. 1 l. long. Pennsylvania.

Deep black, shining, densely and very minutely punctured: head with a large yellowish or fulvous frontal spot; labrum and antennæ, testaceous: thorax with a large whitish spot on each of the lateral margins, contracted on the posterior angles: elytra, each with four pale fulvous spots, placed 1, 2, 1; anterior spot occupies the inner basal angle; posterior one is placed a little before the apex, nearly equidistant from the suture and lateral edge: beneath and femora, dull ferruginous; tibiæ, tarsi, and

apex of the femora testaceous; tooth of the anterior tibiæ small. Resembles somewhat *ursina*, Fabr., but is smaller than that species, and differs in the elytral spots.

3. B. *basalis*. Head, aaterior and lateral margins of the thorax, four basal and two apical spots of the elytra, pale sulphureous: two thoracic spots, elytra and beneath, black. $1\frac{1}{2}$ l. long. Pennsylvania.

Hemispheric, very minutely punctured, shining: head pale sulphureous; eyes similarly colored, with a dusky pupil, antennæ and feet color of the head: thorax color of the head, with two large subtriangular black basal spots, separated by a narrow dorsal line: elytra black, each with three large pale sulphureous spots, of which two are at base and one at apex; the inner basal spot is much larger than the humeral one; the apical spot is suborbiculate, and is placed nearer the edge than the suture: beneath blackish. Perhaps a variety of *felina*, Fabr.

HYPERASIS, Chevr.

1. H. *maculifera*. Black; head, anterior and lateral margins, eight elytral spots and feet, yellowish. 1 l. long. Pennsylvania.

Black, shining, densely punctulate: head yellowish, eyes black; palpi and antennæ color of the head: thorax with the anterior margin narrowly, and lateral margins broadly, yellowish: scutellum rather large, black, obscurely punctulate: elytra each with four yellowish spots, placed 1, 2, 1; anterior spot humeral, the two intermediate ones are placed transverse-obliquely, and the posterior spot is posted near the apex: beneath blackish; pleuræ, epipleuræ, parapleuræ and feet, color of the head.

Var. a. As in the type, but with the head and anterior margin of the thorax, black. *Coccinella* 8-*guttata*, Melsh. Catal.

Var. b. As in var. a., but the humeral, intermediate and apical spots of the elytra are connected by a yellowish lateral margin. *Coccinella confluens*, J. Melsh. MS.

2. H. 10-*pustulata*. Black; head, lateral thoracic margins and ten elytral spots, fulvous; feet testaceous-yellow. $\frac{3}{4}$ l. long. Pennsylvania.

Coccinella 10-*pustulata*, Melsh. Catal.

Shining black: head indistinctly punctulate, yellowish-fulvous; eyes black; antennæ, palpi and feet yellowish: thorax punctured like the head, with the lateral margins fulvous: scutellum comparatively large: elytra distinctly and densely punctulate, each with five roundish fulvous spots, placed 2, 2, 1; the terminal spot is confluent with the apical edge: beneath black; pleuræ and epipleuræ testaceous-yellow.

Var. a. As in the type, with the head and thorax entirely black. *Coccinella* 10-*guttata*, Melsh. Catal.

3, A. *leucopsis*. Black; head, lateral margins and anterior edge of the thorax white; elytra with two fulvous spots on the middle. $\frac{3}{4}$ l. long. Pennsylvania.

Black, shining, finely and densely punctured: head whitish; eyes blackish; antennæ and anterior feet dull yellowish; thorax with the anterior edge and lateral margins white; scutellum moderate, acute-triangular: elytra each with an orbiculate fulvous spot on the middle; beneath blackish; hind feet fuscous

The elytral spots of this species are sometimes deep scarlet, and the tip of the clypeus dusky. It is the *biguttata* of Melsh. MS.

4. H. *fimbriolata*. Punctulate, black; front, exterior margins of the thorax and elytra, fulvous: anterior feet dusky testaceous; beneath, and intermediate and posterior feet blackish or dusky piceous. $1\frac{1}{4}$ l. long. Pennsylvania.

Coccinella fimbriolata, Melsh. Catal.

Var. a. Thorax immaculate. *Coccinella lateralis*, Melsh. Catal.

EXOCHOMUS, Redtenbacher.

E. *prætextatus*. Black; head, lateral margins of the thorax and elytra, two basal spots and a common central one of the latter, fulvous: feet testaceous-yellow. $1\frac{1}{3}$ l. long. Pennsylvania.

Coccinella prætextata, Melsh. Catal.

Black, densely punctulate, shining: head fulvous or yellowish, with the clypeus at tip slightly emarginate and elevated: mouth sparsely whitish pilose; antennæ color of the head; eyes blackish: thorax with the lateral margins broadly fulvous: scutellum very small, hardly apparent: elytra with the inner basal angles triangularly, and the lateral margins broadly, fulvous, the latter with the lateral margins similarly colored, and united to a large common central spot by a narrow fascia, spot and fascia color of the lateral margins: beneath blackish; feet color of the head. The labrum is slightly produced.

Var. a. Head and thorax uniform black; femora blackish; tibiæ and tarsi dull dusky testaceous. *Coccinellæ fimbria*, J. Melsh. MS.

CHILOCORUS, Leach.

C. *verrucatus*. Above and feet black; elytra with a common and two basal spots, and beneath, red. $3\frac{1}{4}$ l. long. Pennsylvania.

Coccinella verrucata, Knoch MS.

" *trimaculata*, Melsh. Catal.

" *tripustulata*, De Geer, Ins. v, 393, 2?

Black above, shining, impunctured: head black, immaculate; antennæ rufo-testaceous: thorax with the anterior angles and edge, obscurely rufous; elytra each with an oblong basal spot, and suture a little behind the middle with a common linear one, cinnabar-red: feet blackish; beneath light scarlet-red: wings fuliginous. This may prove to be a variety, but not the type, of *tripustulata*, De Geer.

SCYMNUS, Kugelann.

1. S. *collaris*. Black; head, anterior and lateral margins of the thorax and feet rufous. $\frac{3}{4}$ l. long. Pennsylvania.

Coccinella thoracica, Melsh. Catal.

Subhemispheric, black, punctulate, pubescent: head and thorax, rufous, the latter with a semiorbicular black basal spot in front of the scutellum, the latter very small: elytra with the apical margin narrowly and obsoletely testaceous: beneath black, with the tip of the abdomen testaceous; antepectus, antennæ and feet, rufous; hind femora at base dusky. Size, form and markings entirely of *Coccinella parvula*, Fabr., of which it may be a local variety.

2. S. *punctatus*. Black, distinctly punctured; elytra each with a red spot. $\frac{1}{2}$ l. long. Pennsylvania.

Oval, deep black, shining, pubescent: head black, with an obscure, transverse, impressed line below the front labrum mouth and antennæ, piceous: thorax finely punctured, with the anterior edge piceous: scutellum distinct: elytra comparatively strongly punctured, long somewhat dilated before the middle, each with a small orbicular red spot near the middle; humeral tubercles small, distinct: beneath and feet blackish, the latter rather piceous.

3. S. *flavifrons*. Black; head and a large spot behind the middle of each elytrum, yellowish; tibiæ and tarsi, testaceous. $\frac{2}{3}$ l. long. Pennsylvania.

Coccinella flavifrons, Melsh. MS.

Subhemispheric, black, shining, pubescent, punctulate: head and antennæ, yellowish; eyes black: thorax minutely punctured, with the anterior angles obsoletely testaceous: scutellum minute: elytra more distinctly punctulate than the thorax, each with a large orbicular yellowish spot behind the middle, and nearer to the suture than the lateral edge: beneath black: tibiæ and tarsi, testaceous; femora often dusky, sometimes testaceous.

[NOTE.—Dr. Melsheimer's "Descriptions of new North American Coleoptera" have been in course of publication in these Proceedings since April, 1844. In Vol. II, No. 2, will be found the commencement of this valuable and elaborate paper. The additional portions have appeared at such intervals in succeeding numbers, as the limits to which the Society is in some measure obliged to restrict its publications, and the claims of other contributors to the pages of the Proceedings would justify. These descriptions, together numbering about six hundred, are now concluded. The great care and labour bestowed upon them by the author, afford the best evidence of their correctness, and consequently of their value to those interested in this particular order of Insects.]

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. MARCH AND APRIL, 1847. No. 8.

Stated Meeting, March 2, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Mr. Richard C. Taylor presented a large and valuable collection of fossils and rocks, from various parts of the world, of which a list will be published in a future number.

Specimen of Fluor spar with crystallized Galena, from Freiburg, Saxony; specimens of crystallized Manganese and Manganese ore, from Ihlfeld, Harz Mountains; Analcime from Fassathal, Tyrol, and two fossil fish from the Zechstein formation. Presented by Mr. Theodore F. Moss.

The following mounted skeletons were received from Dr. Morton in exchange, viz:—Bradypus tridactylus, Podargus Stanleyanus, Dacelo gigantea, and Astur Novæ Hollandiæ.

DONATIONS TO LIBRARY.

Iconographie Ornithologique; par O. des Murs. 4to. 4th and 5th Livs. Deposited by Dr. T. B. Wilson.

Revue Zoologique; par la Société Cuvierienne. Annees 1838–1845. From the same.

Magasin de Zoologie; par F. E. Guerin, Annees 1831–1844. From the same.

Oken's Isis; Encyclopædische Zeitschrift vorzuglich für Naturgeschichte, vergleichende Anatomie und Physiologie. Hefts 1–8. 1846. From the same.

The Dog: by William Youatt. Edited with additions by E. J. Lewis, M. D. Philadelphia, 1847. From Dr. Lewis.

Hybridity in Animals and Plants, considered in reference to the question of the Unity of the Human Species. By S. G. Morton, M. D. New Haven, 1847. From the Author.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3. No. 5. From the Association.

American Journal of Agriculture and Science. Conducted by Dr. E. Emmons and A. Osborn, Esq. No. X. Feb. 1847. From the Editors.

The following were received from Dr. Morton, in exchange for fourteen Human Crania now in the cabinet of the Society:

Fauna Boreali-Americana. By John Richardson, Esq., F. R. S., &c. Part 1, Mammalia. Part 2, Birds. 4to. London, 1829 and 1831.

A Supplement to the Appendix of Captain Parry's Voyage for the discovery of a North-west passage, in the years 1819–20. Containing an account of the subjects of Natural History. 4to. London, 1824.

Ornithologia Suecica. Auctore W. Nillson. Pars prior. 8vo. Havniæ, 1817.

Tentamen Systematis Amphibiorum. Auctore Blasio Merrem. 8vo. Marburgi, 1820.

Histoire Naturelle generale des Pigeons et des Galinacees; par C. J. Temminck. 3 vols. 8vo. Amsterdam and Paris, 1813.

Principles of Geology. By Charles Lyell, Esq., F. R. S. 4 vols. 8vo. 4th Edition. London, 1835.

Dr. Morton read a comunication from the Rev. Dr. Bachman, of South Carolina, on the subject of Hybridity in Birds and Quadrupeds.

The following communication was read from Messrs. Aaron Sharpless and William Kite, of Chester country, Pennsylvania, dated 2d mo. 18th, 1847, in reference to the living Hybrids between the Guinea fowl and the turkey, lately presented by them to the Society.

"The mother was a common Guinea fowl, the survivor of two or three chicks hatched under a common hen two years ago from eggs presented to us. From constantly associating with the poultry, and having none of her own species for companions, she was rather unusually domestic.

The father was a common turkey cock, the reputed father of our flock of turkeys, having nothing very remarkable in his habits.

Last spring the hen having arrived at maturity, was observed to drop one or two eggs, as though preparing for incubation. Supposing them to lack vitality, we procured a cock of the same species from a neighbor, and confined them together in a coop for a few days. On releasing them, the new comer remained for some days and then disappeared. Supposing our object to have been accomplished, the hen was now suffered to form her nest in peace, which she did, laying twenty-two eggs, differing in no respect that we can now remember, either in size or colour from common.

When within a few days of maturing these eggs, her nest was broken up by an opossum, which destroyed nearly all of them; she however gathered the remnant together and brought off three chicks: the surviving two are those now in the possession of the Academy; discovering the hybridity of these, we have much regretted the loss of the rest of the brood.

As the chicks advanced toward maturity, they began to excite our attention by peculiarities which induced us to suspect their hybridity. The young of the guinea fowl assume the colour of the adult, but these always had the rusty brown tinge on their plumage which now marks them. They never were able to compass the note of their mother so familiar to our boyish reminiscence, but always ran into a cracked or falsetto key, which seemed laboured. They were quiet birds, differing in this from the guinea, whose clamor is so disagreeable in the poultry

yard as to induce many persons to discard them. In the figure of these birds, their heads, and the size and appearance of their legs and feet, there is a greater resemblance to the turkey than to the dung-hill fowl, the only other bird a cross like the present could be traced to. One habit they had peculiar to the turkey, that of erecting the feathers on the back of the neck. The plumage of these birds also partakes somewhat of the peculiarities of that of the turkey, though curiously blended with that of the pintado.

In a poultry yard we always find the guinea fowls masters of the place, in which peculiarity our hen shared, boldly attacking any who offended her, and readily putting the cocks to flight. This latter circumstance seems to negative the probability of the cross we are examining being with the latter fowl.

We consider ourselves further confirmed in supposing the turkey before alluded to, to be the father of these hybirds, from the face that he was the only male turkey then in the poultry yard, and very close attentions were noticed between him and the hen, which were fully reciprocated on her part, though the act of sexual intercourse escaped our observation."

Professor Johnson offered some observations on the cellulose of the Borneo Palm, and its reaction with Nitric and Sulphuric acids, bywhich it was apparently converted into Zyloidine, and not into Pyroxiline.

The Curators exhibited a mass of minute black insects, (Acari?) which had been received from the Rev. James H. McFarland, of Reading, Pa., by whom they had been collected on the Broad mountain, near the Summit Coal mines, Schuylkill county, Pa, on the 28th of December last. The snow for a quarter of a mile along the road was covered to blackness with these insects, and heaps from which a peck could have been collected, were frequent on the road. The day was warm for the season. A few more were obtained on a subsequent day, during a fall of snow.

The Curators having announced that a National Medical Convention was to assemble in this city in the early part of May next, it was on motion,

Resolved, That the Curators be authorized to tender to the delegates from the city and county of Philadelphia to the National Medical Convention, the use of the Hall of the Academy during the session of the Convention.

Also, on motion, *Resolved*, That the Library Committee, in conjunction with the Librarian, be instructed to devise plans for book cases in the new Library and Meeting room, and report the same at the next meeting of the Society.

Stated Meeting, March 9th, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Professor Johnson presented the following:

Sigillaria pachyderma, from South Joggins, Bay of Fundy, N. S., and also from Cranberry Head, Cape Breton; Stigmaria fucoides from the same localities.

The following minerals were presented by Mr. Moss:

Feather Ore, and Galena, from Freiburg, Saxony; Carbonate of Iron, from Erzburg, Styria; and Arragonite from Bohemia.

DONATIONS TO LIBRARY.

American Journal of Science and Arts, No. 8. Vol. 3. New series. From the Editors.

Proceedings of the Boston Natural History Society; pp. 177 to 192 inclusive. From the Society.

Geological results of the Earth's contraction in consequence of cooling. By James D. Dana. New Haven. 1847- From the Author.

Anniversary Address of the State Agricultural Society of South Carolina, delivered Nov. 26, 1847. By the Hon. Mitchel King. Columbia, S. C., 1846. From Dr. R. W. Gibbes, of S. C.

Proceeedings of the Agricultural Convention, and of the State Agricultural Society of South Carolina, from 1839 to 1845 inclusive : to which are added a memoir on the subject of slavery, by Chancellor William Harper, and a letter on Marl by Ex-Governor James H. Hammond. 8vo. Columbia, S. C., 1846. From the same.

The following works were deposited by J. Price Wetherrill, Esq.:

Histoiré des Végétaux fossiles ou Recherches Botaniques et Géologiques sur les végétaux renfermés dans les diverses couches du globe. Par M. Adolphe Brogniart. Livs. 1, 2, 7 to 15 inclusive. 4to.

Descriptions of the inferior maxillary bones of Mastodons in the cabinet of the American Philosophical Society, with remarks on the genus Tetracaulodon, &c. By Isaac Hays, M. D. 4to. Philadelphia, 1833.

Abbildungen und Beschreibungen der Petrefacten Deutschlands und der angräwzenden Länder, unter Mitwirkung des Herrn Grafen Georg zu Münster, herausgegeben von August Goldfuss. Nos. 1 to 6 inclusive. Folio.

Recherches sur less Ossemens fossiles, &c., par Georges Cuvier. 4me. edition. Vols. 1, 2, 3, 5, 6, 7, 8 (1st part) 9, 10 (1st part.)

The Fossil Flora of Great Britain. By John Lindley, Ph. D., &c., and Wm. Hutton, F. G. S., &c. Vols. 1, 2, and Nos. 3, 4, 5, 6, 7 and 8, of vol. 3.

The Mineral Conchology of Great Britian. By James Sowerby, F. L. S., &c., continued by James D. C. Sowerby F. L. S. Vol. 6.

A dissertation on the nature and character of the Chinese system of writing, in a letter to J. Vaughan, Esq. By Peter S. Duponceau, L. L. D. ; to which is subjoined a

vocabulary of the Cochinchinese language. By Father Jos. Morrone. R. C. Missionary at Saigron. 8vo. Philadelphia. 1838.

Plates 60, 63 to 68 inclus., 70 to 75 inclus., 86 to 89 inclus. of Achille Comte's Régne Animal.

A letter was read from C. B. Adams, Esq., of Middlebury, Vermont, dated 17th Feb., 1847, desiring a copy of vol. 1, of the Proceedings, and an entire copy of the Journal of the Academy.

Also, a letter from Mr. Charles Cramer, of St. Petersburg, requesting certain portions of the Proceedings.

Dr. Bridges, from the Library Committee, in compliance with the instructions given at last meeting, submitted a plan for Book cases in the new Library room, which, at the suggestion of the Committee, was laid upon the table for the present.

Stated Meeting, March 16th, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Specimens of Sigillaria pachyderma, Lepidodendron elegans, and Fucus? From Cape Breton, Nova Scotia. From Prof. Johnson.

An additional number of larvæ of Cicada septemdecim, firmly attached by means of the proboscis to the roots of fruit trees. From Miss Morris of Germantown.

DONATIONS TO LIBRARY.

On the Geological position of the Castoroides Ohioensis. By James Hall, Esq., one of the New York State Geologists. Also, a description of the cranium of the same. By Jeffries Wyman, M. D. 4to. Boston, 1846. From Prof. Hall.

American Journal of Science and Agriculture; conducted by Dr. E. Emmons and A. Osborn, Esq. January and March, 1847. From the Editors.

A letter was read from Miss Morris, dated Germantown, March 5th, 1847, addressed to the Corresponding Secretary, containing the following in relation to the larvæ of Cicada septemdecim, presented this evening.

"I send with this a box containing the larvæ of the Cicada which I promised, and believe you will find them satisfactory evidence of the truth of my theory; they were found on the roots of a pear tree, which I had under examination this morning in company with between four and five hundred, which I gathered while the earth was being removed from a trench four feet wide and two deep that was dug around the tree. This experiment was in every way satisfactory, and proved beyond a doubt the correctness of my former observations.* My only surprise was that the tree had lived so long. I then removed the earth from a tree, distant about twelve feet. A quantity of earth and rubbish had been thrown around this tree, some years since, in consequence of which, the tree had produced a fresh and vigorous set of roots above those attacked by the Cicada; passing below these, about two feet, I found the larvæ in great numbers, but from the difficulty of getting at them, I believed the remedy would prove worse than the disease; so covering them up with fresh earth and manure I left the tree to its fate. I then went to a distant part of the garden, and caused the roots of another tree to be exposed, but to my surprise, found but few Cicada, not more than a dozen. This tree had long ceased to bear fruit, and had become withered and dried, several years before any other tree appeared to suffer, but in 1845 it again showed signs of returning life, though no care had been bestowed to restore it; and in the following year it threw out several fine and vigorous shoots from the branches. On a little further search I found the remedy, as well as the disease, at the root. Mole tracks were to be seen in every direction around the tree and in that portion of the garden. I then examined four other trees, and found that where the mole tracks

*See No. 6, page 132.

were to be found, the Cicada had nearly disappeared, while they abounded where the moles had not been. Many larvæ of the *Scarites lævigatus* were found, no doubt doing their full share to rid us of so great an evil."

Dr. Leidy, from the Curators, read a letter from Dr. J. K. Mitchell, Chairman of a committee of the delegation from the city and county of Philadelphia to the National Medical Convention, returning acknowledgments to the Academy for the offer of its Hall for the use of the Convention, and accepting the same.

The Corresponding Secretary read a letter from Judge Tremper, dated Dresden, N. Y., March 8, 1847, containing some Meteorological observations.

Professor Johnson communicated some observations and experiments on the dust of anthracite furnace flues. Having several years since ascertained the presence of large quantities of salts of ammonia, both sulphates and chlorides, in flues and stove pipes where anthracite is consumed, he had recently directed attention to this as a source from which a moderate supply of these salts for the uses of horticulture may readily be obtained. It was therefore deemed worthy of a trial to ascertain in what proportion the salts soluble in water might occur in the dust of a flue, such as ordinary practice in domestic use would afford. For this purpose, one pound of the dry dust was heated with successive portions of distilled water until the liquid ceased to be coloured, or to give a saline residuum on complete evaporation. The liquid was of a dark brown colour, and on analysis afforded.

Sulphate of lime, - - - - -	12.3 grains
Sulphate of Ammonia, - - - -	285.5
Chlor-hydrate of Ammonia with undetermined compound tarry matter, - -	20.4
Total in 1 pound - . - -	478.8 grains, or

6.84 per cent., or including the losses incident to the several steps of analysis, may be taken at 7 per cent.

Professor Johnson exhibited some fine specimens of the bark of a Sigillaria, converted into coal, obtained from the coal fields of Nova Scotia.

Stated Meeting, March 23d, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Micaceous Oxide of Iron, from Nova Scotia. From Dr. Hallowell.

Lepidodendron elegans, Asterophyllites equisitiformis, and Calamites connæformis; from Sydney, Cape Breton. From Prof. Johnson.

A letter was read from Thomas C. Eyton, Esq., dated Wellington, Shropshire, England, Feb. 18, 1847, presenting a case of insects, and asking for certain exchanges with the Academy. Referred to the Zoological Committee.

A communication from the Secretary of the American Philosophical Society was read, acknowledging the receipt of late numbers of the Proceedings.

A paper by Peter A. Browne, Esq., proposing a new nomenclature for the Class Mammalia was read and referred to Dr. Leidy, Mr. Haldeman, and Dr. Hallowell.

Meeting for Business, March 30, 1847.

MR. PHILLIPS in the Chair.

Dr. Leidy announced the recent decease of Dr. Amos Binney, of Boston, late a Correspondent of the Academy, and offered the following resolutions, which were unanimously adopted.

Resolved, That this Society has heard with feelings of sincere regret, of the decease of our late Correspondent, Dr. Amos Binney, of Boston, President of the Natural History Society, a most liberal patron of, and contributor to the Science of this country.

Resolved, That this Society condoles with the Boston Natural History Society for the loss they have sustained.

Resolved, That the Corresponding Secretary transmit a copy of the above resolutions to the Natural History Society.

The following gentlemen were elected Correspondents of the Academy:

Ogden Hammond, Esq., of Charleston, S. C.

Wm. A. Bromfield, M. D., of the Isle of Wight.

Stated Meeting, April 6, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Several specimens, in spirits, of the very young fœtus of Didelphis Virginiana, taken from the pouch of the living animal. From Mr. Thomas Beasley, of New Jersey.

Several specimens, in skin, of Pipra chrysoptera. From Mr. John Bell, of New York.

DONATIONS TO LIBRARY.

Oken's Isis, No. 9, for 1846. Deposited by Dr. T. B. Wilson.

The Viviparous Quadrupeds of North America: By J. J. Audubon and Rev. H. Bachman. No. 21. From the same.

Illustrations of the Zoology of South Africa: consisting chiefly of figures and descriptions of the objects of Natural History, collected during an expedition into the interior of South Africa in 1834, '35, '36, fitted out by "The Cape of Good Hope Association for exploring Central Africa," &c. &c. By Andrew Smith, M. D., Director and Surgeon to the Expedition. Nos. 1 to 23 inclusive. 4to. London. From the same.

Mr. Webster's vindication of the Treaty of Washington of 1842, in a speech delivered in the United States Senate, April 1, 1846. From Prof. Johnson.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3. No. 6. From the Association.

A letter was read from Dr. John P. Barratt, of South Carolina, acknowledging the receipt of his notice of election as a Correspondent.

Stated Meeting, April 13, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Dr. T. B. Wilson presented a number of specimens, in spirits, of Platydactylus, Scorpio, &c., from Cuba.

Dr. Morton deposited a skull of Manatus americanus, from the river Amazon, Saurian bones from Mount Holly, N. J. and a tooth of the Asiatic Elephant.

DONATIONS TO LIBRARY.

Annals of the Lyceum of Natural History of New York. Vol. 4. Nos. 8 and 9. From the Lyceum.

Boston Journal of Natural History. Vol. 5. No. 3. From the Boston Society ofNatural History.

A letter was read from the Rev. Dr. Thomas S. Savage, dated Cape Palmas, Western Africa, January 1, 1847, acknowledging the receipt of his notice of election as Correspondent.

Dr. Leidy mentioned, as a remarkable instance of the great fecundity of the Cryptogamia, that in a puff-ball (Lycoperdon) of large size, he counted under the microscope 27 sporules in the cubic hundredth of a line, which by calculation, allowing for cellular tissue, makes the total amount contained in the specimen, 1,007,669,000,000.

On motion of Prof. Johnson, *Resolved*, That a committee be appointed to inquire into the conditions of the bequest of the late William S. Warder, Esq., to this Institution, and to ascertain whether the conditions on which said bequest was made, have not been so for realized that the Academy may be justly entitled to receive the benefit intended by the testator.

Messrs. Johnson, Pearsall and Carpenter were then appointed the Committee.

Stated Meeting, April 20, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Dr. Thomas B. Wilson deposited four remarkably perfect Saurian skeletons from the Lias of England, each contained in its original matrix, as follow:

Skeleton of Icthyosaurus tenuirostris, measuring 8 feet, 4 inches from the tip of the rostrum to the end of the tail. From Glastonbury, England.

Skeleton of Icthyosaurus ———, 7 feet 7 inches from the tip of the rostrum to end of the tail. From the same locality.

Skeleton of Icthyosaurus ———, 6 feet 7 inches from the tip of rostrum to the end of tail. From Lyme Regis, England.

Skeleton of Plesiosaurus dolichodeirus? measuring 6 feet 4 inches from tip of snout to end of tail. From Lyme Regis.

Dr. Morton deposited a human cranium from an embalmed body found in a tomb at Midian, in Arabia, by M. Fresnel, and by him presented to Dr. Morton.

Also, skulls of Beaver, (Castor fiber,) and the Coati of Paraguay.

Specimens of Sponge from the West Indies: presented by Mr. John C. De Costa.

DONATIONS TO LIBRARY.

American Journal of Agriculture and Science. By D. E. Emmons and A. Osborn, Esq. No. 12. April, 1847. From the Editors.

Catalogue of the genera and species of Recent Shells, in the Collection of C. B. Adams, A. M. Middlebury, Vt. 1847. From the Author.

Charts of New Haven and Little Egg Harbor. From the Treasury Department, through A. Bache, Esq.

Dr. Thomas B. Wilson deposited the following splendid works:

The Birds of Europe. By John Gould, F. L. S., &c. 6 vols. Folio. London, 1837.

A Monograph of the Odontophorinæ, or Partridges of America. By John Gould. Folio. Parts 1 and 2. London, 1844 and 1846.

Icones Avium, or Figures and Descriptions of new and interesting species of Birds from various parts of the globe. By John Gould. Folio. Parts 1 and 2. London, 1837 and 1838.

A Century of Birds from the Himalaya Mountains. By John Gould. Folio. London, 1832.

A Monograph of the Trogonidæ, or family of Trogons. By John Gould. Folio. London, 1838.

A Monograph of the Rhamphastidæ, or family of Toucans. By John Gould. Folio. London, 1834.

The Birds of Australia. By John Gould. Parts 1 to 25 inclusive. Folio.

The Mammals of Australia. By John Gould. Folio. Part 1.

Zoologia Typica; or figures of new and rare Mammals and Birds described in the Proceedings, or exhibited in the collections of the Zoological Society of London. By Louis Fraser. Quarto. Parts 1 to 8 inclusive.

The Zoology of the Voyage of H. M. S. Erebus and Terror, under the command of Capt. Sir James Clark Ross, R. N., F. R. S., during the years 1839 to 1843. Edited by John Richardson, M. D., F. R. S. 4to. Parts 1 to 5 inclusive.

Iconografia della Fauna Italica par le Quattro Classi degli-Animali vertebrati di Carlo L. Principe Bonaparte, Principe de Canino e Musignano, &c. Tom. 1, 2 and 3.

Monographie de la famille des Myiotherinæ: par E. Ménétriés. 4to.

Notices of the Ornithology of Napal. By B. H. Hodgson. 4to. pamphlet.

Recherches sur l'appareil sternal des Oiseaux considéré sous le double rapport de l'ostéologie et de la myologie, &c., par M. le docteur F. J. Herminier. 2d edition, 8vo. Paris, 1828.

An account of the change of plumage exhibited by many species of female Birds, at an advanced period of life, &c. By John Butter, F. L. S., &c. 8vo. pamphlet.

Revue Zoologique; par la Société Cuvierienne. Nos. 1 to 8 for 1846, and No. 1 for 1847.

The Zoological Journal: conducted by Thomas Bell, J. G. Children, J. de Carle Sowerby, and G. B. Sowerby. 5 vols. 8vo. and an Atlas.

A letter was read from Mr. Ogden Hammond, dated 19th April, 1847, returning acknowledgments for his election as a Correspondent.

Mr. Gambel read a continuation of his "Remarks on the Birds observed in Upper California." Referred to the Committee on former portions of the paper.

Mr. Cassin read a "Description of a new rapacious Bird in the collection of the Academy of Natural Sciences of Philadelphia." Referred to Messrs, Harris, Townsend, and Gambel.

Dr. Morton read "A description of Fossil Remains from the Eocene green sand of South Carolina. By Robert W. Gibbes, M, D.;" which was referred to Drs. Morton, Wilson and Leidy.

Dr. Leidy communicated an observation which he had made in the human adult subject, of the existence of a *spiculum of bone* developed between the lamina of the dura mater, just over the point at which the *trigeminus nerve* pierces that membrane, the purpose of which he supposes to be, to protect the nerve from pressure as it passes over the superior edge of the petrous portions of the temporal bone to join the Casserian ganglion.

Mr. Phillips offered the following, which was adopted:

Resolved, That a copy of the Journal of the Academy, as far as can be spared, be transmitted to Mr. Moricand, of Geneva, in exchange for several numbers of his 'Plants of Brazil, lately presented to the Academy.

On motion of Mr. Gambel, *Resolved*, That the Publication Committee be authorized to commence the publication of a new series of the Journal of the Academy, in quarto form.

Meeting for Business, April 27, 1847.

VICE PRESIDENT MORTON in the Chair.

The Committee on Dr. Gibbes' paper describing fossil remains from the Eocene green sand of South Carolina, reported in favour of publication in the forthcoming number of the Journal of the Academy.

The Committee on M. Cassin's paper read at last meeting reported in favour of publication.

Description of a new rapacious Bird in the Museum of the Academy of Natural Sciences of Philadelphia.

By John Cassin.

Genus Cymindis, Cuvier.

Cymindis *Wilsonii*, Nobis. ♂. Body above entirely dark brown, palest on the head, beneath white; every feather from chin to under tail coverts crossed by several bars of bright rufous chesnut, and these colours extending upwards into a collar around the neck; fourth, fifth and sixth primaries longest and nearly equal, external webs nearly black, internal webs of outer primaries white at base and for nearly half their length, the remaining part reddish inclining to chesnut, every primary (on its inner web) having two irregularly shaped black marks and tipped with black. Tail of the same colour as the back but paler, white at base, and crossed by about four broad bars which are nearly black, the second bar from the tip accompanied by a narrow rather indistinct bar of rufous; tip of tail narrowly edged with white. Bill very large, (larger than in any other species of this genus,) yellowish white, inclining to bluish horn colour at base.

♀. Body above entirely slate colour, palest on the head, beneath barred with the same, the bars having a ferruginous tinge.

Total length of mounted specimen, from tip of bill to end of tail, 17 inches.

Hab. Island of Cuba.

The two specimens here described, were presented to the Academy by its esteemed member, Richard C. Taylor, Esq., the eminent Geologist, who has kindly favoured me with the following note and memorandum from his journal:

Philadelphia, April 5th, 1847.

Dear Sir: I make the best reply in my power respecting the pair of Hawks, the skins of which and of other birds were brought by me from the Island of Cuba; but not being an Ornithologist, the very concise description that I can give of them may not be very intelligible nor useful.

The locality was towards the north-eastern part of the island, in the vicinity of the port of Gibara, in the province of Holguin. The range of country more especially traversed by me, during six months residence, extended from the sea coast to thirty miles inland, either into the savanna, or copper region of the mountains. I have particularly described this country in the Transactions of the Am. Phil. Society, vol. ix., pp. 204 to 218, where I have also given a reconnoisance map.

My journal contains a short note, made at the time these hawks were shot. My companion and myself saw this pair in company, hovering over the crest

of the high limestone mountain called La Silla, about seven miles from the coast: my attention was called to them by my companion, a resident of the island, who assured me they were extremly rare, and he hoped we should be able to shoot them; we were then on the peak of the mountain, and after a little chase, were so fortunate as to obtain both the male and female. My note is literally as follows:

"*Gabilan azul*, blue hawk of the Spaniards, male and female, very rare and difficult to shoot. Pupil black, with a greenish-yellow iris."

The food of these birds was stated to be various birds, of which doves were the most abundant on the spot, with perhaps an occasional relish of lizards, which were also abundant. I understood that these hawks frequented the most lofty and solitary peaks and were not often seen below. We considered ourselves extremely fortunate in the acquisition of this fine pair of birds.

Respectfully yours, RICHARD C. TAYLOR.

Mr. John Cassin.

The bill in this species is very large in proportion to the size of the bird, and it agrees, moreover, tolerably well with the *written* description of Falco magnirostris, Gmelin,—so does the young Cymindis uncanitus, Illig. All authors, however, except Dr. Latham, clearly understood the F. magnirostris to be the bird figured in Enl. 464, which is a common South American species of the genus Astur.

Dr. Latham, in his article on F. magnirostris, Gen. His. vol. 1, p. 282, gives a description of a bird suspected by him to be the species intended by Gmelin, which applies very well to Cymindis cayanensis, Gm., in young plumage, but not to C. Wilsonii.

I have named this species in honor of Dr. Thomas B. Wilson, as a slight tribute to his merits as a man, and his munificence as a patron of Zoological science.

Remarks on the Birds observed in Upper California.

By WM. GAMBEL.

(Continued from page 158.)

PASSERES.

Lanius Ludovicianus, Linn. Loggerhead Shrike.

L. *excubitoroides*, Swains. Northern Zool. p. 115, pl. 34.

In the Shrikes we are presented with a group of birds closely allied to each other, and undergoing such changes in plumage as renders them difficult to discriminate. Although examined with great care by Swainson in the Fauna

Boreali-Americana, yet he appears to have laid too much stress upon characters subject to great variation, as size, relative length of quills and color.

The adult of the Loggerhead is a beautiful bird, and might well have been called *excubitoroides*, for the resemblance in colour and marking to the European *excubitor* is very great. Above, it is of a clear pearl grey colour with the upper tail coverts, and exterior edges of the scapulars, nearly pure white; beneath pure white; the quantity of white on the tail feathers varies, but generally is in proportion to the age of the bird.

The relative length of quills in the Shrikes is an uncertain character, and differs very much according to age. In the young of this species, the second quill is generally much shorter than the sixth, but in the adult, equals and may even exceed the sixth in length; the proportion of the third, fourth and fifth to each other is also exceedingly various, and indeed in each wing of the same bird it is very common to find the proportion of the quills differing very materially. This I have found to be the case in the European and both American species.

It is rather strange that this bird so abundant in the southern, western and north western portions of our country, should not be found in the middle and northern Atlantic States. In California it is very common.

Lanius septentrionalis, Gmel. Northern Shrike.

L. borealis, Vieill. Swains.

I found our Butcher Bird in the Californian ridge of mountains in November, but did not meet with it along the coast during summer, appearing to be replaced by the Loggerhead, which is a summer resident.

Perisoreus Canadensis, (Linn.) Bonap. Canada Jay.

We met with numbers of this plain and familiar bird in the Rocky mountains of the interior.

Cyanocorax Stelleri, (Pallas) Bonap. Steller's Jay.

This species is occasionally met with in the pine groves of the mountains from New Mexico to California.

Cyanocorax Californicus, (Vigors) Nobis. California Jay.

Garrulus Californicus, Vigors, Zool. Beechy's voyage.

G. ultramarinus, Aud. Nutt. non Bonap.

The California Jay has been hitherto confounded by American ornithologists with the Mexican *G. ultramarinus*, accurately described by Prince Bonaparte, in the Journal of this Society, in 1825, and afterwards described and figured also, by Temminck in his Planches colorées, 439. It is strange that the Prince himself should have committed the same error of confoundiug the two species in his Comparative list of the Birds of Europe and North America, quoting at the same time Audubon's plate and description, which is clearly the *Californicus*.

The distinctions between the two species are very considerable, and may be thus stated.

CYANOCORAX ULTRAMARINUS.

Much larger, 13 to 13½ inches in length.

Upper parts entirely blue; head and cheeks blue also, except space between the eye and bill which is black.

The blue extending down the sides of the neck, but without a pectoral band.

Throat only, whitish; all the rest of the under parts of a dirty brownish white, darker on the breast.

Length of wing 7 inches.

Tail nearly even, length 6¾ inches.

Tarsus 1¾ inches.

CYANOCORAX CALIFORNICUS.

Length 11½ to 12 inches.

Back brown. A broad line of white spots extending over the eye the length of the head, and with the space anterior to the eye and auriculars dusky.

A crescent of blue surrounds the upper part of the breast.

Throat and upper part of breast white, streaked with lines of dusky; all the rest beneath the collar of blue, brownish white.

Length of wing nearly 5 inches.

Tail graduated or much rounded, length 5¾ innhes.

Tarsus 1½ inches.

The *C. ultramarinus* by its greater size, blue colour above, and absence of pectoral band, together with its very different proportion, is easily distinguished from the *C. Californicus*, which is much smaller, has a brown back, a white superciliary line, and a dull white throat, and breast surrounded by a collar of blue.

The *G. sordidus*, Swains. (Syn. Bds. Mex.) generally quoted as a synonym of the *ultramarinus*, dose not agree very well with it, unless the description were taken from a young bird, in which the tail is irregularly rounded, and the size somewhat less.

The California Jay is a very abundant species, and a constant resident. In its actions it is exceedingly restless, and at the same time sprightly and graceful, ever flitting from tree to tree, uttering a harsh grating *jay, jay*, and sometimes altering it to *kay ic, kay ic*. Like all the Jays, they are very fond of scolding, and a troop of them will surround and follow almost any object that attracts their attention, with their teasing disagreeable cries.

Pica Hudsonica (Sabine) Bonap. Common Magpie.

We frequently met with the Magpie on our route from New Mexico to California. It would linger around our camp to pick up the offal, and sometimes boldly steal the meat which was hung on the bushes around.

Pica Nuttalii, Aud. Nuttall's Magpie.

I felt great pleasure on arriving at Santa Barbara, in Upper California, in seeing in its native haunts, this distinct and beautiful Magpie, discovered by my friend, the indefatigable naturalist and traveller after whom it is named;

among others, a just tribute for the invaluable services he has rendered to natural science, during more than thirty years of his life, spent among us, in untiring investigation of the productions of our country.

In California, at least, and where as yet I believe it has alone been found, this Magpie is exceedingly local, being confined, as far as I have observed, to the immediate neighborhood of Santa Barbara, where among the beautiful evergreen oaks (*Quercus agrifolia*) of the vicinity, it is abundant.

Sprightly and graceful in its movements, it is a favorite with the inhabitants; and when not molested shows considerable confidence, often being seen about the doors of the houses, but becoming remarkably shy and cautious when chased or shot at. During my stay, from frequently shooting at them, although at first they were numerous in small flocks, they at length became so scarce that during the breeding season very few were to be seen, apparently having gone to the ravines of the neighboring mountains, so that I did not find a single recent nest, although the woods were full of those of the last year. The old nests were large, and built loosely of sticks like that of a crow, and situated in the topmost forks of the trees, well concealed by the foliage.

Corvus ossifragus, Wils. Fish Crow.

Abundant along the Pacific coast.

Corvus Americanus, Aud. Common Crow.

Also abundant throughout the Pacific coast, as well as in the interior.

Corvus catatotl, Wagler. American Raven.

Fitted by its organization for any means of subsistence, there are few parts of North America where the Raven may not be found.

In the arid region between the Rio Colorado and California, its ominous croak renders the desert solitude more dismal, and on the rocky uninhabited Islands off the coast of California, it is the companion of the Fish-hawk and Gulls; but in California, instead of being scattered and solitary, it becomes one of the most abundant and familiar of birds, and in company with its fellow-scavengers, the Turkey vultures and dogs, it is exceedingly useful in consuming the refuse of the cattle which are slaughtered in such great numbers. At the Pueblo de los Angeles, so abundant were they in and around the town, that I have counted in the *corral*, or court yard of a single house, as many as 150 at one time.

Nucifraga Columbiana, (Wils.) Aud. American Nutcracker.

We occasionally met with this peculiar bird in the mountains of the interior, among the scattered pine groves.

Quiscalus major, Vieill. Boat-tailed Blackbird.

This large and handsome blackbird is very abundant about the Gulf, and occasionally is seen as far north as Upper California.

Scolcophagus ferrugineus, (Wils.) Bire. Rusty Blackbird.

We found this species very common in New Mexico and California, as also

the *S. Mexicanus*, Swains. lately described and figured by Audubon as *Quiscalus Breweri.*

Sturnella neglecta, Aud. Western Meadow Lark.

This nearly allied species we found a bundant on the prairies in New Mexico, Rio Colorado, and California. In the spring around the Pueblo de los Angeles its delicate and melodious song was every where to be heard. About Monterey in the winter it kept in and along the margins of the pine woods.

Molothrus pecorus, (Gmel.) Swains. Cow Blackbird.

Abundant, in company with the Rusty Blackbird, frequenting, in flocks, the cattle corrals and farm houses of New Mexico and California.

Icterus bullockii, Swains. Bullock's Oriole.

The males of this beautiful bird arrive at their summer quarters about the Pueblo de los Angeles and Santa Barbara, in California, about the first week in April, and the female in a week or so afterwards. They resort to the retired hedges of vineyards and orchards, and occasionally are seen among the trees in the town. Its song during this joyful season is uttered in a loud clear tone, and sometimes varied, but generally *wek te tek tshe-o tshe-o tshe-o, wek te tek tshe-o.* This is continued at intervals while flitting through the budding trees in search of their insect fare. When it observes any object of suspicion, it utters a few guttural croaking scolding notes, and conceals itself among the leafy boughs.

About the middle of April I saw them commencing to hang their nests in the manner of our golden Robin, on the pendulous branches ef the willow and other trees surrounding the vineyards, and as far as I remained to see them completed, they were made with the same ingenious interweaving of delicate materials to form a pouch.

Ageliaus xanthrocephalus, Bonap. Yellow-headed Blackbird.
Abundant in California.

A. phaniceus, (Linn.) Vieill. Red winged Blackbird.
Abundant in New Mexico and California.

A. tricolor, Aud. Three colored Blackbird.

This handsome species, discovered by Mr. Nuttall, and sent to Audubon with the above name, is abundant in California, going in small flocks in company with the other species. Its notes are very different from those of the red-wing, with which it associates, being a kind of guttural squeaking, like that made by a dying animal. The red of the wing cannot be seen when they are closed, looking as if it only had a white band.

A. gubernator, (Wagler) Bonap. Two colored Blackbird.

This pretty species is abundant, also, in California, and along the western coast of Mexico. It is often found in company with the *phœniceus*, which it

so much resembles, together keeping about corrals and places where cattle have been.

ELECTION.

The following gentlemen were elected Members:

David C. Skerrett, M. D., of Philadelphia.

Mr. George Boyd Allinson, "

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. MAY AND JUNE, 1847. No. 9.

Stated Meeting, May 4, 1847.

The Society convened this evening, for the first time, in the new and commodious Library and Meeting Room in the basement of their Hall. On this occasion, Vice-President MORTON, upon taking the Chair, addressed the Society as follows :—

Gentlemen,—As we now meet here for the first time, and under circumstances highly auspicious to the success of our Institution and to the interests of science, I beg to be indulged in a few remarks.

On the evening of the 25th of January, 1812, six gentlemen met at a private residence, the home of one of them, in this city. Their objects were, conversation and improvement. They had often met before, but without any definite intention; but they were *now* incited by a new impulse, a prospective enterprise.—Let them speak for themselves, in the following brief but emphatic declaration :

"We will contribute to the formation of a museum of natural history, a library of works of science, a chemical experimental laboratory, an experimental philosophical apparatus, and every other desirable appendage or convenience for the illustration and advancement of natural knowledge, and for the common benefit of all those individuals who may be admitted members of our Institution."

This resolve was adopted at the second meeting of the founders, one week after their primary sitting, on which occasion

Thomas Say was also present, and Dr. Gerard Troost was elected first President of this Society. Little did these two gentlemen, and their five colleagues, foresee the results of their unpretending enterprise; for Science, in this country, was then in its infancy, and the number of those who fostered it was few indeed.

From the acorn springs the oak; and from the humble efforts and continued self-sacrifices of a few private individuals, has arisen this Institution, now grown to the manhood of science.

Thirty-five years have elapsed since those seven persons, private citizens, men without fortune or influence, laid the foundation of our Society. That their intentions have been ably and zealously sustained, through periods of probation and uncertainty, I can safely aver. Trials are the best incentives to exertion; and the mind knows not its resources until forced to contend with adverse circumstances. There were those who resolved in their minds, who vowed in their hearts, that this institution *should* succeed. Many of them are now in their graves; but their memory is inseparably blended with the annals and the honours of science. Maclure, Say, Godman, Collins, Conrad, Harlan and Keating—each has left his name on the tablet of nature; and could the venerable Maclure now behold the institution which he so ably sustained, and so munificently provided for, how would he rejoice in the consummation of those hopes which he so ardently cherished during the last twenty-five years of his life!

Among our living members are many to whom I would gladly award the just meed of praise for their signal and successful exertions in this our common cause; and there is one among us in the prime of life, and full of zeal in diffusing those great truths which in part illustrate, in part constitute, the laws of Omnipotence. He has come to us clothed in the spirit of science. What he has accomplished, every eye can see. An hundred years of ordinary prosperity could not have realized so much. To say less would be unjust. To say more would wound a mind that shrinks from observation and eulogy.

Let us continue our exertions to make this Institution a practical school of Natural History, by throwing open our doors to all who seek knowledge; and, supported and encouraged by the flattering auspices under which we have now met, let us redouble our zeal to unfold and diffuse the truths of Science.

DONATIONS TO MUSEUM.

Dr. Wilson presented a very large and elegant polished slab of Dendritic Limestone, from the vicinity of Bristol, England.

Dr. William Blanding presented a mounted specimen of Condylura cristata.

DONATIONS TO LIBRARY.

The American Journal of Science and Arts. New Series. No. 9. May, 1847. From the Editors.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3. No. 7. From the Association.

Proceedings of the Providence Franklin Society. Vol. 1. No. 1. April, 1847. From the Society.

The following works were deposited by Dr. Thomas B. Wilson:

Zoological Illustrations. By William Swainson, F. R. S. 6 vols. 8vo. London, 1820–1832.

New Illustrations of Zoology. By Peter Brown. 1 vol. 4to. London, 1770.

Gleanings of Natural History. By George Edwards, F. R. S., &c. 7 vols. 4to. London.

Zoological Illustrations in Java and the neighboring Islands. By Thomas Horsfield, M. D., F. R. S., &c. 1 vol. 4to. London, 1824.

Illustrations of the family of Psittacidæ, or Parrots. By Edward Lear, A. L. S. 1 vol. Folio. London, 1832.

Cimelia Physica: figures of rare and curious quadrupeds, birds, &c. By George Shaw, M. D., F. R. S., &c. 1 vol. Folio. London, 1796.

Mr. Gambel read a paper by Lieut. J. W. Abert, U. S. A., describing a new Quail, from New Mexico. Referred to Messrs. Gambel, Cassin, Harris and Townsend.

Dr. Leidy read a letter from Prof. Spencer F. Baird, of Carlisle, Pennsylvania, describing a Hybrid between the Canvas-back Duck and the common Duck.

The Librarian read a letter from the Rev. John G. Morris, of Baltimore, requesting certain exchanges of books. Referred to the Librarian, with authority to act.

Dr. Morton presented a paper from Dr. R. W. Gibbes, of Columbia, S. C., in continuation of his description of the fossil remains of the Zeuglodon, from the Eocene of South

Carolina, with additional drawings of the same. Referred to the Committee on the previous portions of the paper.

Professor Hare made some observations on the combustion of gum in oxygen gas, and stated that the brilliant light which it emitted during combustion, proceeded from the presence of lime, which he considered an essential constituent of gums.

Dr. Leidy stated that whilst engaged in examining the structure of some Lichens, he discovered numerous octagonal crystals intermingled with the cellular structure of several species of *Parmelia*. Many of the crystals equalled in size the greenish cells themselves, although none of them appeared to be contained within the latter. As chemical analysis has detected in these plants a large proportion of oxalate of lime, Dr. Leidy supposed these crystals to be that salt.

Stated Meeting, May 11, 1847.

Mr. Phillips in the Chair.

DONATIONS TO MUSEUM.

A large massive specimen of Copper ore from the Flemington Copper Mines, New Jersey. Presented by Dr. Thos. McEuen.

An earthenware Indian utensil, taken from a crevice in a rock on Pine creek, Lycoming county, Pennsylvania. From Mr Thos. H. Taylor.

Specimen of Astacus affinis, from Kentucky. From Prof. Haldeman.

Bituminous coal from the Tippecanoe pit, Clover Hill, Va., and Fuller's earth from the same locality. From Professor Johnson.

Mounted specimen of Callipepla squammata, Gould, from Mexico. From Lieut. J. W. Abert, U. S. A.

The following specimens in spirits, of Reptilia, originally part of Prof. Rafinesque's collection, were presented by Dr. Hallowell, viz.:—

Lacerta viridis, var. agilis, Linn.; L. cærulescens, m. & f., L. Brongniartii Daudin; L. muralis; L. crocea; Anguis fragilis; Coluber Æsculapii; C. austriacus; C. tesselatus; C. natrix, L.; Vipera ammodytes; Rana arborea; R. esculenta; R. temporaria; R. fusca; R ignea; R. variabilis; R. vulgaris; Salamandra maculosa; S. atra; S. cristata; S. ignea; S. tæniata.

DONATIONS TO LIBRARY.

Medical Botany; or descriptions of the more important plants used in medicine; with their history, properties and mode of administration. By R. Eglesfeld Griffith, M. D. 8vo. Philadelphia, 1847. From the Author.

On Hybridization amongst vegetables. By the Hon. and very Rev. William Herbert, L. S. D., Dean of Manchester. Part 1. From the Author, through Dr. Elwyn.

The Corresponding Secretary read a letter from Richard Kippist, Esq., Librarian of the Linnean Society of London, dated March 4, 1847, acknowledging the receipt of his notice of election as a Correspondent.

Prof. Johnson made some remarks upon the Tippecanoe coal mines of Clover Hill, Virginia, from which the specimens presented this evening were obtained.

Stated Meeting, May 18, 1847.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

The following collections of Bivalve Shells (consisting of 162 species) was presented by Dr. Robert E. Griffith, viz.:—

Aspergillum 1 species; Gastrochæia, 4 do.; Toredo, 4 do.; Pholas, 8 do.; Solen, 12 do.; Solecurtis, 2 do.; Mesodesma, 5 do.; Leguminaria, 1 do.; Panopœa, 2 do.; Periploma, 1 do.; Lutraria, 4 do; Mactra, 15 do.; Crassitella, 3 do.; Eryeina, 2 do.; Mya, 2 do.; Corbula, 1 do; Pandora, 4 do.; Anatina, 1 do.: Thracia, 1 do.; Tellina, 78 do.; Psammobia, 11 do.

A fine specimen of Isis hippuris, from the China seas. Presented by Capt. John Land.

Calamites approximatus, from Hazleton, Luzerne county, Pennsylvania. From Prof. Johnson.

Dr. Leidy presented a paper by John L. Le Conte, M D., of New York, entitled "Fragmenta Entomologica," describing the following new species of Coleopterous Insects, viz.:—

Triplax atriventris, T. vittata, T. ruficeps, T. tæniata; Dyctioptera substriata; Digrapha affinis, D. apicalis, Celetes basalis, C. tabida; Pedilus Pulcher, Canthon perplexus; Hybosorus carolinus; Ochodæus obscurus; Bothynus morio, B. obsoletus, B. pyriformis, B. variolosus; Cantharis fulgifer, C. nigricornis, C. filiformis; Spondylus sphœricollis; Eros incestus, E. timidus, E. æger, E. solicitus, E. socius, E. mollis, E. lascivus, E. vilis; Phanæus torrens, P. difformis; Zenoa vulnerata; Steropes occidentalis; Monocerus bifasciatus, M. serratus; Pyrota Engelmanii; Heliophilus latimanus; Opatrum fossor; Tetraopes femoratus; T. annulatus.

The paper was referred to the following Committee:—Prof. Haldeman, Dr. R. E. Griffith, and Dr. Pickering.

Meeting for Business, May 25, 1847.

VICE PRESIDENT MORTON in the Chair.

After some preliminary business had been concluded, Dr. Morton made a few remarks on an aboriginal cranium obtained by Dr. Davis and Mr. Squier, during their researches in the mounds near Chilicothe, Ohio. Dr. M. observed that it possessed in a remarkable manner all those characteristics which pertain, in various degrees, to the Indian skull in every region of this continent, viz.:—the vertical occiput, great vertical diameter, and corresponding width between the parie-

tal bones, so that the several diameters are nearly equal, giving the whole head a singularly high, and squared or conical form, while the forehead recedes less and the face is less prominent than is usual in skulls of the American race. Dr. M. added, that he had in his possession upwards of four hundred Indian crania, but that this was more beautifully developed, in all its proportions, than any one of them. The relic in question possesses additional interest from the opinion of the gentlemen who found it, that it pertains to the race of aboriginal mound builders.

ELECTION.

Edward Hartshorne, M. D.; John Neill, M. D.; and Mr. Richard Kern, of Philadelphia, were elected *Members*.

And the following gentlemen were elected *Correspondents*.

Prof. Isaac L. Chipman, of Acadia College, Nova Scotia; George N. Lawrence, Esq., of New York.

Stated Meeting, June 1, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Dr. Wilson deposited the following valuable casts:

Icthyosaurus latimanus, and Icthyosaurus intermedius, the originals of both in the Bristol Institution, England; Pterodactylus crassirostris, upper and under view; and Head of Pistosaurus. Also, an original specimen of Teleosaurus Chipmani? from the Lias of Wurtemburg.

Dr. Wilson also presented three casts of Egyptian tablets from originals found at Thebes, and now in the possession of Mr. Goldney.

The following collection of Shells from the Island of Jamaica was presented by Prof. C. B. Adams, of Vermont, viz.:—

Helix aspera, H. acutissima and var. H. lucerna, H. Cookiana, H. epistylium, H. pulla, H. nemoraloides, H. sinuata, H. Brownii, H. per-affinis, H. marginata, H. turbiniformis, H. arboreoides; Helicina Leana, H. aureola, H. costata, H. pulchella, H. Brownii; Cylindrella nobilior, H. brevis; H. sanguinea, H. carnea, H. Cumingii, H. seminuda; Truncatella Cumingii; Pedipes quadridens; Cyclostoma mirabile, C. crenulatum, C. articulatum, C. Grayanum, C. maritinum, C. columna, C. pulchrius, C. fascia, C. album, var. fuscum, C. Brownii, C. corrugatum, C. lincina, C. album, and C. linea.

Dr. R. E. Griffith presented a collection of Shells consisting of fifty species of Murex, thirty-two species of Triton, and twenty species of Ranella.

DONATIONS TO LIBRARY.

On the new planet Neptune; (from the Proceedings, of the American Academy of Arts and Sciences, March, 1846.) From Prof. Pierce.

Genera Plantarum secundum ordines naturales disposita: Auctore Stephano Endlicher. Nos. 1 to 8. 8vo. From Dr. William Darlington.

Dr. Wilson deposited the following :—

Iconographie Ornithologique, Par. O. Des Murs. 7th Liv.

The Genera of Birds. By George Robert Gray; with plates by David William Mitchell. Parts 29 to 36 inclusive.

Illustrations of the Zoology of South Africa, &c. By Andrew Smith, M. D., &c. No. 24.

Oken's Isis. No. 10 for 1846, and No. 1 for 1847.

The Viviparous Quadrupeds of North America. By Audubon & Bachman. No. 22.

Fauna Japonica. Auctore P. H. von Siebold. No. 14.

Verhandelingen over de Natuurligke geschiedenis der Nederlandsche overzesche bezettingen, door de leden der Natuurkundige commissie in Oost-Indie en andere Schrijvers. Botanic, parts 1 to 7; Land-en Volkenkunde, parts 1 to 9.

Zoologia typica, &c. By Louis Fraser. Nos. 9 and 10.

The Birds of Australia. By J. Gould. No. 26.

A Natural History of the Birds of New South Wales. By John Wm. Lewin, A. L. S. 1 vol. 4to. London, 1828.

Iconographie du Régne Animal de M. le Baron Cuvier. Par M. F. E. Guerin. Vols. 1 and 2, coloured plates. Vol. 3, text. 8vo.

History and Description of the Royal Museum of Natural History. Translated from the French of M. Delouze. Parts 1 and 2. 8vo. Paris, 1823.

Travels in New Zealand; with contributions to the geography, geology, botany, &c., of that country. By Ernest Dieffenbach, M. D. 2 vols. 8vo. London, 1843.

A specimen of the Botany of New Holland; by James Ed. Smith, M. D., F. R. S., the figures by James Sowerby, F. R. S. Zoology of New Holland: by George Shaw, M. D., F. R. S., the figures by James Sowerby. In 1 vol. 4to. London, 1793--94.

Histoire naturelle des plus beaux Oiseaux chanteurs de la Zone Torride; par L. P. Vieillott. 1 vol. folio. Paris, 1805.

The Magazine of Natural History and Journal of Zoology, Botany, &c., conducted by J. C. Loudon, F. L. S., &c. 9 vols., 8vo. London, 1829 to 1837.

New series of the same work; by Edward Charlesworth, F. L. S. 4 vols. 8vo.

Annals of Natural History, or Magazine of Zoology, Botany, and Geology, (being a continuation of Loudon's Magazine of Zoology and Botany, and of Hooker's Botanical companion) 18 vols. 8vo. and 3 Nos. of vol. 19.

Magazine of Zoology and Botany; conducted by Sir Wm. Jardine, P. J. Selby, and Dr. Johnson. 2 vols. 8vo.

The Zoology of the Voyage of H. M. S. Beagle, under the command of Capt. Fitzroy, R. N., during the years 1832, to '36. 1 vol. 4to. London, 1840.

The Zoology of the Voyage of H. M. S. Blossom, under the command of F. W. Beechey, R. N., in the years 1826 to '28. 1 vol. 4to. 1839.

Illustrations of British Ornithology. By Prideaux T. Selby, Esq. 2 vols., plates, folio max.

A letter was read from Prof. Andreas Retzius, dated Stockholm, April 25, 1847, acknowledging the receipt of his notice of election as a Correspondent of the Academy, and communicating the result of Prof. Müller's examination of the Hydrarchos of Dr. Kock, which he is satisfied is identical with the Basilosaurus of Harlan, (Zeuglodon cetoides, Owen;) a fact long since announced by this Society, and published in its Proceedings.

Prof. Retzius also stated that he had detected a cutaneous gland in the Fox, (Canis vulpes) near the root of the tail, opening on the surface, and emitting an agreeable odour. He considered this gland characteristic of the genus Vulpes, and desires further investigation of the subject.

Prof. Hare made some observations on the weather of the past spring, referring particularly to the great prevalence of easterly winds, and their unusual and remarkable aridity, and as a consequence, the retarding of vegetation.

He also expressed his conviction that rain only occurred when two strata of clouds existed; if only one was present, its moisture would be absorbed by the surrounding atmosphere.

Mr. Gliddon remarked that the casts of Egyptian tablets, presented this evening, were those of ordinary funereal tablets, which were frequently found with the mummies, deposited by the friends of the deceased. They probably belonged to the 18th or 19th Dynasty.

Stated Meeting, June 8, 1847.

DR. MCEUEN in the Chair.

DONATIONS TO MUSEUM.

Several specimens of copper ore from the Flemington Copper Mine, N. J. From Dr. McEuen.

A collection of bird skins, reptiles, &c., from the Island of Jamaica. From Dr. C. W. Pennock.

A portrait of the late distinguished Botanist, A. P. De Candolle. Received through Prof. Asa Gray.

DONATIONS TO LIBRARY.

Memoirs de la Société de Physique et d' Histoire Naturelle de Geneve. Tome x., pt. 2. Tome xi., pt. 1. From the Society.

Troisiéme Supplement au Memoire sur les Coquilles terrestres et fluviatiles de la Province de Bahia. Par D. J. Moricand. From the author.

The Corresponding Secretary read a letter from Prof. C. B. Adams, dated Boston, May 22d, 1847, accompanying the donation of shells announced at last meeting, and proposing to the Society, for publication in its Journal, a Memoir on the Natural History of the Island of Jamaica, of which he was the author.

The letter was, on motion, referred to the Publication Committee.

A letter was read from Dr. Frederick Tamnau, of Berlin, dated March 22d, 1847, making enquiry relative to a box of minerals which he had transmitted to the Academy at a former period, and asking an equivalent for the same; which was accordingly ordered by resolution of the Society.

Dr. Leidy called the attention of the Society to a cranium of a New Hollander, in which the remains of sutures of the incisive bone could be distinctly traced.

Mr. Edward Harris exhibited specimens of *Amorpha*

fruticosa, raised from seed brought by himself from the State of Missouri.

Prof. Johnson exhibited a plan for forming geological sections, in which the different strata were represented by the rock itself in a pulverized state upon paper.

Stated Meeting, June 15, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Report of the Commissioner of Patents, exhibiting the operations of the Patent office during the year ending Dec. 31, 1845. From Peter A. Browne, Esq.

The history and culture of the Olive. The anniversary address of the State Agricultural Society of South Carolina, delivered Nov. 26, 1846, by the Hon. Mitchel King. Columbia, S. C, 1846. From Dr. R. W. Gibbes, of South Carolina.

Proceedings of the American Philosophical Society. Vol. 4. Nos. 36 and 37; July 1846 to March 1847. From the Society.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3, No. 8. From the Association.

Dr. Wilson deposited the following fine works:

Planches colorées d'Oiseaux: par C. J. Temminck. 5 vols. folio.

Voyage autour de Monde de la Coquille, pendant les années 1822, '23, '24 and '25, par M. L. Duperry. Zoologie: par MM. Lesson and Garnot. 2 vols. 4to. and Atlas, folio. Paris, 1826, '30.

Histoire naturelle generale des Pigeons: par C. J. Temminck, (with his original introduction, and proof plates before lettering,) 1 vol. folio. Paris, 1808.

Les Pigeons; par Madame Knip, née Pauline de Courcelles, premies peintre d'histoire naturelle de S. M. l'Imperatrice Reine Marie Louise: le texte (1er. tome) par C. J. Temminck, et (2e. tome) Florent Prevost. Folio. Paris, 1811, 1834.

A letter was read from the Royal Bavarian Academy of Sciences, dated Munich, April 26, 1847, requesting certain portions of the publications of this Society for completing the series of the same in the Bavarian Academy.

A communication was read from the Secretary of the American Philosophical Society, dated May 7, 1847, returning acknowledgments for late numbers of the Academy's Proceedings.

Professor Hare read a memoir intended for publication in the Journal of the Academy, entitled "Objections to the electrical theories of Franklin, Du Faye and Ampére, with some suggestions as a substitute."

Referred to a committee consisting of Dr. Bridges, Mr. H. Seybert, and Prof. Johnson.

Professor Hare stated that among the results of the combustion of gunpowder, he had detected the formation of Sulpho-cyanide of Potassium, indicated by its producing a blood-red precipitate with the per-salts of iron.

Stated Meeting, June 22d, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A collection, in spirits, of Reptiles from Jamaica. Presented by Dr. C. W. Pennock.

Dr. C. D. Meigs presented a living specimen of Hydrochœrus capybara (Cavy,) from South America, and a living specimen of Didelphis Virginiana.

Dr. Morton deposited five crania of Malays, and one of an Oceanic Negro.

DONATIONS TO LIBRARY.

American Journal of Agriculture and Science, conducted by Dr. E. Emmons and A. Osborn, Esq. June 1847. From the Editors.

On the destruction and partial reproduction of forests in British North America. By John William Dawson, Esq., of Pictou. From the Author.

Dr. Wilson deposited the following:

The Viviparous Quadrupeds of North America; by J. J. Audubon and Rev. J. Bachman, D. D. Vol. 1, large 8vo. New York, 1846.

Oken's Isis, No. 2, for 1847, and Révue Zoologique, No. 2, for 1847.

A letter was read from J. W. Dawson, Esq., dated Pictou, N. S., May 25, 1847, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Leidy exhibited a drawing of an Entozoon, (a species of Distoma,) found in the pericardium of *Helix alternata*. This entozoon is half a line in length by a quarter of a line in breadth, a large comparative size, when its situation is considered, being equal to that of the ventricle of the heart. The pericardium was perfectly transparent, and presented no appearance of cicatrix, or marks of external communication. Dr. Leidy then read the following description of

Distoma Helicis.—Oval, flattened, white in colour; oral disk large, round, marked by radiating lines: posterior disk central, about the size of that of the mouth, radiate, with a dark spot in the centre. Intestinal canal commencing by a fusiform œsophagus, the apex of which joins a round stomachal cavity, from which passes off on each side a convoluted intestinum, which proceeds to the posterior extremity of the body. About half way between the central disk and the

posterior extremity of the animal, I indistinctly observed what I presumed to be the generative orifice.

By permission of the Society, a report was received from the Committee on Dr. R. W. Gibbes' memoir, entitled "On the fossil genus Zeuglodon, Owen, with an account of specimens from the Eocene green sand of South Corolina," recommending the same for publication in the forthcoming number of the Journal of the Academy. The report was adopted.

Meeting for Business, June 29, 1847.

MR. PHILLIPS in the Chair.

The Committee, to whom was referred Prof. Hare's paper entitled "Objections to the electrical theories of Franklin, Du Faye, and Ampère, with some suggestions as a substitute," reported in favour of publication in the Journal of the Academy. The report was adopted.

The Committee on Mr. Peter A. Browne's paper, proposing a new nomenclature for the class Mammalia, reported that the views taken by the author, although novel and ingenious, did not, in their opinion, justify the substitution of the names proposed for those in use, and established by Cuvier and others. The Committee also requested that a copy of the paper might be deposited in the Library of the Academy. The report was adopted.

The Committee on a paper by Lieut. J. W. Abert, U. S. A., describing a supposed new species of Quail inhabiting New Mexico, reported the same to be the *Ortyx squamata*, Vigors; and recommended for publication the following portion of the communication.

"This bird appears to be well known throughout the whole department of New Mexico, for a sketch that I had made of it was universally recognized by the inhabitants of that country, who called it "La Codorniz." I met with several coveys on the banks of the "Rio del Norte," opposite to Socorro," but I had not the good fortune to obtain any specimens until Nov. 12th,

when in the neighbourhood of 'Bosquecito,' and again on the 9th of Dec., when hunting, about eight miles to the north of 'Fray Cristobal.'

These birds congregate in flocks or coveys of from 20 to 30; when alarmed, they emit a chicking note, and run with such rapidity, that it is difficult to get a second sight of a covey, that one may have startled; they seem to love the low sandy bottoms where the wild sage grows; as these bottoms are covered with little knolls, which with the sage, serves to secure them from their enemies. Although not hunted by the people, they are shy. When forced to take wing, they make a whizzing sound that startles one, scattering as they fly, so that when they alight, they are at considerable intervals from each other, but they soon call together, with the uttering of a single whistling note. I dissected several, and found them to contain small green insects of the Hemipterous order, also grass seed and the berries of the mistletoe, which in that country grows on nearly every cotton-wood tree. The female bears so great a resemblance to the male, that dissection alone can serve to determine the sex."

The Publication Committee, to whom was referred Prof. C. B. Adams' letter of May 22d, relative to a paper on the Natural History of Jamaica, reported that they deem it at present inexpedient to accept the proposal of Prof. Adams, in regard to publishing the same in the first number of the new series of the Journal of the Academy. The report was adopted.

The report of the Corresponding Secretary was read and adopted.

The following resolution was adopted.

Resolved, That subscribers to the Journal of the Academy be entitled to the Proceedings of the same, free of charge during the period of their subscription.

ELECTION.

The following gentlemen were elected Correspondents of the Academy:

E. George Squire, Esq., of Chilicothe, Ohio,
Dr. Edwin H. Davis, do. do.
James Carson Brevoort, Esq., of New York,
Major George A. McCall, U. S. A.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. JULY AND AUGUST, 1847. No. 10.

Stated Meeting, July 6, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following collection of rare and valuable shells, principally from the East Indies and the South Seas, was presented by Dr. Wilson; viz:—

Helix Busbyii, 1 specimen; Bulimus Downsii, 4; B. mindorensis, 3; B. (undescribed) from Venezuela, 1; B. do. do., 2; B. citrinus, 2; B. do. reversed, 2; B. Funchii, 1; Cardium multipunctatum, 1; Pyrula Mawei, 1; Bivalve (undescribed, from Japan,) 1; Murex tenuispinosus and operculum, 1; Conus regius (princeps), 2; Trochus Guilfordii, 1; Ovula volva, 1; Ranella imperialis, 2; Oliva undata, (white) 2; Trigonia pectinata, 2; Rostellaria Powisii, 1; Voluta Delesertii, 1; Carinaria vitrea, 1; Cypræa vitellus (white). 3; Scalaria varicosa, 2; Cyclostoma inca, 3; Unio discus? 1 valve; Ostrea iris (prismatica), 1; Nœra longirostra, 1; N. undescribed, 1; Helicina (undescribed, from Venezuela, 2; Spondylus gæderopus, 1; Auricula Caledonica.

Dr. Wilson also presented a collection of British shells, consisting of 65 specimens: also seven masses of Anatifa, Sabella, Spatangus, Balanus, Serpula, and Velhella.

Dr. R. E. Griffith presented a collection of shells comprising

41 specimens of Fusus, 11 of Pyrula, 8 of Fasciolaria, 26 of Turbinella, and 56 of Pleurotoma.

Mr. T. C. Percival presented several specimens of Minerals from Montgomery County, Penn. Also, some very fine specimens of the fruit of Vanilla aromatica, both wild and cultivated, from Tamaulipas, Mexico.

A specimen in skin, of Garrulus peruvianus, and one of Icterus cucullatus, from Mexico. Presented by Major G. A. McCall, U. S. A.

Prof. Johnson announced that the collection of Chemical apparatus of Mr. Henry Seybert, together with his library of Chemical works, had been received, and were now on deposit in the Institution. The apparatus consists of 1500 pieces of the following descriptions:—

Among the articles of glass are large assortments of digesters, phials, tincture bottles, jars, globular receivers, matrasses, tubes, funnels, alembics, retorts, conical foot glasses, air pump receivers, precipitating jars, syphons, eudiometers, alkalimeters, mercurial bath receivers, adapters, areometers for all liquids, with 250 reagents and other preparations in jars and phials. The *porcelain ware* includes capsules with sockets, evaporating dishes, mortars and pestles, plain and branched tubes, calcining tests, funnels, plates, retorts, cups, &c. The *earthen ware* embraces fire-clay "tests," crucibles, retorts, crucible covers and stands, assay furnaces, chauffers, muffles, cupels, &c. The *platina* includes covered crucibles, forceps, spatula, spoon, wire, plate, foil and grains Among the *miscellaneous articles* are agate mortars, chemical lamps, mouth and table blowpipes, portable forge, Papin's digesters, leaden tubes, assayer's table, blowpipe table and bellows, a work table, a variety of furnace implements, and other furniture essential to an analytical laboratory. The *scales* and *weights* are in *six* cases, and of sizes adapting them to different chemical researches.

The Library contains 259 volumes, by the following authors:

Thenard, Haüy, Brard, Beudant, Orfila, Richerand, Magendie, Gay Lussac, Bergmann, Murray, Fourcroy, Kapeler and Caventou. Jourdan, Karsten, Ure, Thompson, Mirbel, Faraday, De Lisle. Chaptal, Berthollet, Klaproth, Sage, Cramer, Priestly, Black, Schmeiser, Kirwan, Brongniart, Berthier, Lucas, Humboldt, Park, Jameson, Accum, Ingenhouz, Spallanzani, Chevreul, Homassel, Lavoisier, Bache, Lewis, Maquer, Henry, Payen and Chevallier,

Vitalis, Berzelius, Aiken, Cuvier, Stromeyer, Burat, and Rose; together with 44 volumes of the Annales de Chimie, and 47 volumes of the Annales de Chimie et de Physique.

DONATIONS TO LIBRARY.

A voyage round the world in the years 1800 to 1809, in which the author visited the principal islands in the Pacific Ocean, and the English settlements of Port Jackson and Norfolk Island. By John Turnbull. 3 vols. 12mo. London, 1805. From Dr. Joseph Leidy.

The Literary Record and Journal of the Linnean Association of Penn. College. Vol. 3. No. 9. From the Association.

Review of Dr. M. Gay's statement of Dr. Jackson's claims to the discovery of the inhalation of ether as a preventive of pain. By J. B. S. Jackson, M. D. From the author.

De Candolle's Prodromus, Pars 7, sectio posterior. Purchased by Academy to complete its series.

Dr. Wilson deposited the following works:

A History of the fossil fruits and seeds of the London Clay: by James Scott Bowerbank, F. G. S. Part 1. 8vo. London: 1840.

Illustrations of the Geology of Yorkshire: by John Phillips, F. R. S., &c. Part 1, the Yorkshire Coast; Part 2, the Mountain limestone District. 4to. London: 1835–36.

Iconographie Ornithologique: par O. Des Murs. 8th Liv.

Spicilegia Ornithologica exotica. Auctore J. F. Brandt. Fascic. 1. 4to. Petropoli: 1839.

The Animal Kingdom of the Baron Cuvier, enlarged and adapted to the present state of Zoological Science; illustrated after the original drawings of Audebert, Baraband, Cuvier, &c., (comprising Mammalia, orders Bimana, Quadrumana and Cheiroptera.) 2 vols. in one. 4to. Edinburgh: 1839.

Description des Coquilles fossiles des environs de Paris: par G. P. Deshayes. Tomes 1 and 2, and Atlas, 4to. Paris: 1824.

Monographie des plantes fossiles du Grés Bigarré de la Chaine des Vosges: par W. P. Schimper et A. Mougeot. 1 vol. 4to. Leipzig: 1844.

Mr. James Read presented the following works:—

Calendrier de Flore; ou études de fleurs d'apres nature: par Madame V. D. C. . . . . ; 3 vols. 8vo. Paris, 1802.

Traite des Jardins; ou le nouveau de la Quintinye, &c.; par M. L. B. . . . . .; 4 vols. 8vo. Paris 1775.

Dr. Robert E. Griffith deposited a large collection of valuable works, many of them very rare: viz:—

D. Georgii Rudolphi Boehmeri Bibliotheca scriptorum Historiæ naturalis Œconomiæ aliarumque artium ac scientiarum ad illam pertinentium realis systematica. 9 vols. 8vo. Leipzig. 1685 to 1789.

Recreatio mentis et oculi, in observatione animalium testaceorum curiosis naturæ inspectoribus Italico sermone primum propositæ A. P. Phillippo Bonanno, 1 vol. 4to. Rome, 1684.

Deliciæ Cobresianæ; J. P. Cobres Buchersammlung zur Naturgeschicte. 2 vols. 8vo.

Fauna Groenlandica: systematica sistens animalia Groenlandiæ occidentalis hactenus indagata, &c., secundum proprias observationes Othonis Fabricii. 1 vol. 8vo. 1780.

Zoologiæ Danicæ Prodromus; seu animalium Daniæ et Norvegiæ indigenarum characteres, nomina, et synonyma imprimis popularium. Auctore Othone Friderico Müller. 1 vol. 8vo., 1776.

Synopsis novorum generum, specierum, et varietatum testaceorum viventium anno 1834 promulgatorum, &c. Auctore Th. Müller. 1 vol. 8vo., 1836.

Bibliotheca Physico-medica. Zu finden bii Leopold Voss in Leipzig. 1 vol. 8vo., 1835.

Jo. Jacob. Baieri Sciagraphia Musei sui accedunt supplementa Oryctographiæ Noricæ cum figuris æneis. 1 vol. 4to., 1730.

Classes Conchyliorum. Auctore Carolo Augusto de Bergen. 1 vol. 4to. 1760.

Kleine beytrage zur Testaceotheologie oder zur erkantniss Gottes aus den Conchylien in einigen sendschreiben herausgegeben. 4to. Frankfort and Leipzig: 1760.

De corporibus marinis lapidiscentibus quæ defossa reperiuntur; auctore Augustino Scilla; addita dissertatione Fabii Columnæ de Glossopetris. 4to. 1747.

Enumeratio Molluscorum Siciliæ cum viventium tum in tellure tertiaria fossilium, quæ in itinere suo observavit auctor Rudolphus Amandus Phillippi. 4to. Vol. 2d: 1844.

Joann. Bapt. Bohadsch, de quibusdam animalibus marinis, eorumque proprietatibus, orbi litterario vel nondum vel minus notis. 4to. 1761.

Recherches sur l'usage des feuilles dans les plantes, et sur quelques autres sujets relatifs a l'histoire de la vegetation. Par Charles Bonnet. 4to. 1754.

Jacobi Theodori Klein tentamen methodi Ostracologicæ, sive dispositio naturalis Cochlidum et Concharum in suas classes, genera et species, &c. 4to. 1753.

Jani Planci Ariminensis de Conchis minus notis liber. &c. 4to. 1750.

Gerardi Blasii Amstelrædamensis Anatome Animalium. 4to. 1681.

Della storia naturale marina dell' Adriatico. Saggio de Signor dottore Vitaliano Donati giuntavi una lettera del Signor dottore Lionardo Sesler. 4to. 1750.

Rariora Musei Besleriani quæ olim Basilius et Michæl Rupertus Besleri collegerunt; nunc commentariolo illustrata a Johanne Henrico Lochnero. Folio. 1716.

Opere postume del Conte Giuseppe Giovanni Ravennate. Folio. 1755.

Thesaurus imaginium Piscium Testaceorum, quæ Georgius E. Rumphius, M. D. collegit. Folio. 1711.

Zoophylacium Gronovianum, exhibens Animalia quæ in Musco suo adservavit, examini subjecit, systematice dis-

posuit atque descripsit Laur. Theod. Gronovius. J. U. D. Folio. 1781.

Musæum calceolarianum Veronense ab Andrea Chiocco, 4to.

Jacobi Breynii Opera: (viz., Fasciculi rariorum plantarum; Icones et descriptiones rariorum plantarum: J. P. Breyni Jacobi filii dissertatio botanico-medica de radica Ginsem, seu Nisi, et Chrysanthem Bidente Zeylanico acmella dicto: Epistola de Melonibus petrefactis Montis Carmel; Dissertatio physica de Polythalamiis.) 4to. 1739.

Descriptiones Tubulorum Marinorum, &c., secundum dispositionem Musei Kleiniani. 4to. 1731.

Ueber den innern bau der sec und einiger anslandischen erd und Flusschnecten. Ein bersuch von Johann Samuel Schræter. 4to. 1783.

D. Joh. Fr. Blumenbach's Handbuch der Naturgeschichte. 12mo. 1799.

The Conchologist's Book of Species, containing 600 species of Univalves. By Sylvanus Hanly, B. A. 2d edition. 8vo. London, 1842.

Kritisches Register zu Martini und Chemnitz's Systematischem Konchylien-kabinet von Dr. E. Pfeiffer. 8vo. 1840.

British Marine Conchology: a descriptive catalogue of the Salt-water Shells of Great Britain. By Charles Thorpe. 12mo. London 1844.

Letters were read:

From Dr. Wm. A. Bromfield, dated June 25, 1847: from Wm. H. Edwards, Esq., dated New York, 29th June, 1847; from George N. Lawrence, Esq., dated New York, 28th June, 1847; and from Major Geo. A. McCall, U. S. A., dated Philadelphia, July 2d, 1847, severally acknowledging the receipt of their notices of election as Correspondents.

From Col. J. J. Abert, U. S. Topograph. Engineers, relating to an Aerolite, which fell on the 25th of Feb. last, nine miles from the town of Marion, Iowa; and enclosing a fragment of the same.

From Henry Seybert, Esq., dated Philadelphia, July 5, 1847, in reference to the deposit of his chemical apparatus and books in the Institution, the conditions of the deposit being, that the whole is to become the property of the Society, unless withdrawn by himself during his life-time, under the usual rules regulating such deposits.

From Richard Brown, Esq, dated Sydney Mines, Cape Breton, Nova Scotia, addressed to the Corresponding Secretary, of which the following is an extract:

"During the last winter months I frequently went into the Pits, and rejoice to say was rewarded by the discovery of some remarkable fossils in the roof of the seam. One was an upright Lepidodendron 12 inches diameter, with roots spreading out in all directions to a distance of 7 to 8 feet from the stem. The roots near their junction with the stem, present rhomboidal markings combined with areolæ of stigmaria—nearer to the extremities of the roots, the rhomboidal spaces disappear and the surface assumes the appearance of true stigmariæ. A pith or core of iron pyrites is found in some of the roots. I sent drawings and descriptions of this fossil to Mr. Bunbury about a month ago. You will probably see them in the London Geological Journal, for August next.

I have also got another remarkable fossil, a complete root-stock of a dome-shaped figure, but the stem had been broken short off, and the bark squeezed together by the mud deposited upon it. It is covered with a coaly bark 10th of an inch thick; presents leaf scars arranged in double lines similar to the Sigillaria alternans of Lindley and Hutton. Roots spread out in all directions, marked with areolæ of stigmaria; but what is most curious, the under side of the root exhibits a series of short, obtuse tap roots, arranged nearly in a circle—these are marked with scars similar to stigmariæ. The under side of the root is also covered with a thin coaly bark—the vertical tap roots are 3 inches long, 2 in diameter at their junction with the root-stocks, and terminate downwards in an obtuse point, the shape being fusiform, or not unlike a short carrot.

In addition to these, I have got some fine specimens of fossil fruits from the same locality. They appear to have been similar to those of Pandanus; the seeds being arranged on the surface and continuing in towards the centre. Before compression they probably resembled a fluted melon in shape, and were as large."

Prof. Hare presented a Synopsis of his paper on Electricity (read at a late meeting of the Academy,) which being designed

for publication in the Journal, as the commencement of said paper, was referred to the same committee.

On motion of Prof. Johnson, *Resolved*, that the thanks of the Academy be presented to Mr. H. Seybert for his liberality in depositing for the use of this Institution, to an indefinite period, his extensive and valuable chemical apparatus and collection of works on chemistry.

Stated Meeting, July 13, 1847.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

Six teeth of Physeter macrocephalus, in different stages; and two very fine specimens of recently crystallized Carbonate of Lime, obtained from an aqueduct upon the Erie Canal. Presented by Dr. R. E. Griffith.

A mass of granite containing fine specimens of Tourmaline and crystallized Feldspar. From Mr. Kilvington.

Dr. Griffith presented an additional collection of Shells, consisting of 57 specimens of Cardium, 4 of Cypricardia, 31 of Bulimus, and 118 of Helix.

A collection of 200 species of Irish Shells. Presented by Wm. Thompson, Esq., President of the Belfast Society of Nat. Hist.

Five specimens of Sertularia, three of Spongia, and one of Flustra, from England. Presented by Dr. Wilson.

Prof. Johnson presented a set of Liebig's apparatus for analysing organic substances.

The Curators exhibited two skeletons of the Hybrid birds between the Guinea fowl and Turkey, and between the former and the common domestic fowl, both of which were recently presented in a living state to the Academy.

DONATIONS TO LIBRARY.

Calcutta Journal of Natural History. Nos. 21, 22, 23, 24, from April 1845, to Jan. 1846. From the Editors.

The American Journal of Science and Arts. No. 10. 2d Series. July, 1847. From the Editors.

Geological Survey of Canada. Report of Progress for the year 1845–6. Same for 1846–7. From Wm. E. Logan, Esq. of Montreal.

Eight Nos. of the Literary Record and Journal of the Linnean Association of Pennsylvania College, furnished at the request of the Corresponding Secretary, for supplying the deficiencies of the same in the Library.

Dr. Leidy read a paper, intended for publication in the New Series of the Journal, entitled "Natural History of Belostoma." Referred to Messrs. Haldeman, Wilson, and Griffith.

Mr. Gambel read a communication from Major George A. M'Call, U. S. A., describing a new Pigeon from Mexico, and containing an account of the habits of the Geococcyx viaticus, Wagler. Referred to Dr. Wilson, Mr. Gambel and Mr. Cassin.

A letter was read from Wm. E. Logan, Esq., dated Montreal, 30th June, 1847, acknowledging the receipt of his notice of election as a Correspondent, and transmitting the Geological Reports announced this evening.

Also a letter from Dr. Von Jæger, dated Stuttgard, 25th March, 1847, acknowledging the receipt of some of the Pubcations of the Academy, and stating his intention to transmit others in return.

Stated Meeting, July 20, 1847.

DR. GRIFFITH in the Chair.

DONATIONS TO MUSEUM.

An additional collection of Shells presented by Dr. Griffith, consisting of 329 specimens of the following genera:—

Pecten, 45 sp.; Cardita, 17; Venus, 1; Cardium, 1; Arca, 36; Machæra, 2; Solen, 2; Periploma, 1; Strombus, 67; Rostellaria, 7; Pterocera, 8; Cassis, 24; Cassidaria, 5; Achatina, 38; Achatinella, 22; and Bulimus, 54.

A specimen, in skin, of Geococcyx viaticus, from Agua Nueva, and one of Bassoris astuta, Lichst.♂, from Monclova. Presented by Capt. Eustis, U. S. A.

Two mounted specimens of the chick of Numida meleagris, white variety. From Dr. Heermann.

DONATIONS TO LIBRARY.

Dr. Wilson deposited the following:

A History of British Birds. By William Yarrell. 3 vols. 8vo., and Supplement.

Histoire du Voyage de la Coquille. Atlas. Folio.

Summary of the Transactions of the College of Physicians of Philadelphia for Dec. 1846, to April 1847, containing a paper by Dr. Hallowell, entitled "Cases illustrative of the natural history of Tuberculous Diseases." From the author.

On the endemic gastro-follicular Enteritis, or Summer complaint of children, as it prevails in the United States. By Edward Hallowell, M. D. From the same.

Catalogo metodico dei Pesci Europei di Carlo L. Principe Bonaparte. 4to. Napoli, 1846. From the author.

Professor Johnson deposited, on the part of Mr. H. Seybert, nine additional chemical works, for use in the Laboratory.

A communication was read from J. F. Frazer, Esq., Secretary of the American Philosophical Society, acknowledging the reception of a recent number of the Proceedings of the Academy.

Meeting for Business, July 27, 1847.

VICE PRESIDENT MORTON in the Chair.

The Committee on Dr. Hare's Synopsis of his paper on Electricity, reported in favour of publication of the same in the Journal, as the commencement of said paper.

The Committee on Major M'Call's communication read 13th inst., reported in favour of publication in the Proceedings.

Description of a supposed new species of Columba, inhabiting Mexico, with some account of the habits of the Geococcyx viaticus, Wagler.

BY GEORGE A. M'CALL.

COLUMBA **solitaria.*

Length 13 inches 9 lines. Alar extent 23 inches. Wing, from the flexure, 7 inches, 5 lines. Tarsus 1 inch; middle toe 1 inch, 2 lines; first toe 9 lines, and longer than the third; nails light flesh colour; feet and legs deep red. Iris dark-orange. Bill above, 1 inch, 1 line, but feathered to within 5 lines of the tip; reddish near the base, whitish near the tip. Head chocolate-blue. Throat chocolate-white. Neck and breast bluish-chocolate with brilliant reflections. Back, belly, flanks, underwing-coverts and greater exterior wing-coverts light red colour, the last faintly bordered with white. Lesser wing-coverts chocolate red, forming a bright shoulder spot of elliptical shape. Quill feathers dusky, tinged with lead colour on the outer vanes. 3rd primary longest. Upper and under tail coverts bluish-lead colour. Tail 5 inches; slightly rounded; of twelve feathers; dusky.

Individuals of this fine species, which, in general contour, resembles *Columba Œnas*, were found on the Rio Grande, from Matamoras to Camargo—these were shy, and only met with at intervals. They were again observed on one or two of the smaller water courses between the former place and Victoria, but never in flocks; nor were more than half-a-dozen seen anywhere in

a single day while hunting over large extents. Their haunts were in the neighborhood of running streams or very large ponds of clear water—here four or five might be found scattered over some 20 or 50 acres; thus showing little sociability even on their feeding grounds. But most frequently he is found alone, perched near the water, or with rapid wing shaping his solitary course across the extensive waste. His flight is extremely bold, as he pitches in wide irregular *zig-zags* through the air, with a velocity scarcely to be surpassed. The meat for delicacy of flavour is not excelled by any of the family.

GEOCOCCYX VIATICUS, Wagler.

(For a description of this bird, see Proceedings of the Academy, vol. 2, No. 10.)

The G. *viaticus*, which the Mexicans familiarly call *Paisano*, (countryman,) is found in Texas, from the River Nueces to the Rio Grande, and in Mexico, from the seaboard at least to the *Sierre Madre*; and being an inhabitant of the *chaparral*, or thorny thicket, he rarely ventures far beyond its borders. Although the toes of this bird are disposed in opposite pairs as in other species of his family, yet the outer hind toe being reverseable and of great flexibility, is in either position aptly applied in climbing or perching, as well as on the ground. Thus he at times pitches along the ground in irregular but vigorous hops, and again when the outer toe is thrown forward, he runs smoothly, and with such velocity as always to be able to elude a dog in the chaparral, without taking wing. He feeds on *coleoptera*, and almost every species of insects. And near the Nueces where the snail (*Lymnæus stagnalis*) abounds, it is also greedily eaten. These he snatches from the ground or plucks from the low branch of a bush, and as he rarely wanders far from his abode, the prize is carried to a particular spot, where the shell is broken with his strong bill and the animal devoured. Piles of these shells are often found that would half fill a hat crown.

Although dwelling principally on the ground, he is ready and expert in catching his prey in the air, in which act his movements are full of animation—bounding from the ground with a sudden impulse to the height of 8 or 10 feet, his wings and tail are seen expanded for a scarcely appreciable instant, and his bill is heard to snap as he takes his prey, when he drops as suddenly to the spot from which he sprang. Here he will stand for a moment, his legs apart, and his tail flirted on one side with a wild and eccentric expression of exultation in his attitude, before he scampers under cover of the thick chaparral. At first I thought—as is the general impression among the Mexicans—that his powers of flight were extremely limited; but he will, when suddenly alarmed in

open ground, rise with a light, quick motion, and continue his flight over the bushes for some hundred yards apparently with an ease that would argue the ability to sustain a longer flight.

Though fond of shade and solitude, he will at an early hour in the morning, climb to the top of a straight leafless branch, there to sit and enjoy the first rays of the sun.

He is said by the Mexican rancheros to build his nest of loose sticks either in a low thick bush, or in close cover on the ground. The eggs are about three in number, of a whitish colour.

The Monthly Report of the Corresponding Secretary was read and adopted.

Dr. Morton read some additions to Dr. Gibbes' paper, suggested by the author, which were referred for examination to the Committee by whom the paper had been reported for publication in the Journal.

ELECTION.

Samuel Powel, Esq., of Philadelphia, was elected a *Member*.

Stated Meeting, Aug. 3, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Dr. Wilson presented a collection of Shells, consisting of 285 specimens of the following genera;

Aspergillum, 2: Teredo, 3: Pholas, 4: Solen, 12: Solemya, 2: Glauconome, 1: Osteodesma, 2: Thracia, 2: Cleidothærus, 1: Lutraria, 6: Mactra, 13: Crassatella, 3: Amphidesma, 6: Psammobia, 8: Tellina, 17: Donax, 1: Cyrena, 3: Astarte, 4: Lima, 1: Hinnita, 1: Spondylus, 6: Placuna, 2: Terrebratula, 3: Mya, 3; Melania, 3; Neritina, 3: Cancellaria, 2: Turbinella, 1: Cardium, 8: Carnita, 3: Arca, 12: Pectunculus, 5: Nucula, 1: Unio and Anodonta, 13: Hyria, 1: Mycetopus, 1: Etheria, 6: Chama, 10: Lithodomus, 1: Modiola, 2: Mytilus, 6: Pinna, 2: Perna, 1: Malleus, 2: Avicula, 12: Pedum, 1: Cytherea, Venus, Arthemis, 60: Pecten, 8: Plicatula, 3: Ostrea, 2: Lingula, 1: Crania, 1: Ungulina, 1: Natica, 1: Triton, 3: Cerithium, 2; Pterocera, 2: Pyrula, 1.

Mr. William Pease, of New, York, presented four species of Terebratula.

Mr. T. A. Conrad presented the following Shells;

Anceulotus dilatatus: Tellina ——: Pecten dislocatus; P. ——: Lucina radula: Pyrula piperata: Donax variabilis: Gnathodon flexuosus: Cyclas ——: Cerithium ——, 3: Buccinum ——: Columbella ——: Margiuella ——: Unio ——, 8:

Dr. R. E. Griffith presented a collection of 264 specimens of Shells, of the genera Dolium, Harpa, Buccinum, Eburna, Cerithium, Pyrena, Crassitella, Haliotis, Purpura and Ricinula.

Dr. Thos. S. Savage, of Cape Palmas, West Africa, presented an interesting series of the nests, or habitations in clay, of the large white ant (Termes bellicosus) of that region, and also portions of dwellings and other structures, which had been subjected to the ravages of this insect. Also, numerous specimens, in spirits, of African reptiles, fishes, cheiroptera, &c. Among the *reptiles* are the following:

Chamæleo dilepis, Leach; Typhlops, 2 species, Crocodilus, Cerastes, Bucephalus, Leptophis, Eupressis, Hemidactylus, Tropidolepis, Calotes, Hyla. *Fishes*,—Numerous specimens of Anabas and Leptorynchus. Of *Cheiroptera*,—Pteropus Haldemani, and an undescribed species of Phyllostoma.

Additional specimens of the Hessian fly, and portions of stems of the common raspberry plant, containing the eggs and larvæ of an insect destructive to the plant. From Miss Morris, of Germantown.

DONATIONS TO LIBRARY.

Muscorum frondosorum novæ species in Archipelago Indico et Japonia; conjunctis studiis scripserunt F. Dozy et J. K. Molkendoer. Lugduni Batavorum, 1844. From Dr. P. W. Korthals, of Leyden.

Materials towards a history of the Coleoptera longicornia of the United States. By S. S. Haldeman, A. M. (From the

Trans. Am. Phil. Soc. vol. x.) 4to. Philada., 1847. From the author.

Proceedings of the General Society of the Cincinnati, with the Act of Incorporation by the State of Pennsylvania, the By-Laws of the State Society, and the testimonial to the memory of General Washington, as adopted and communicated to the meeting of the General Society, in may, 1800. 12mo. Philada., 1841.

Also, Proceedings of the same, with the original institution of the order, and fac simile of the signatures of the original members of the State Society of Pennsylvania. 8vo. Philadelphia, 1847. From the Standing Committee of the Cincinnati Society, through Dr. T. McEuen.

Transactions of the Geological Society of Pennsylvania. Vol. 1, part 2. From Dr. Griffith.

Account of an Expedition from Pittsburg to the Rocky Mountains, performed in the years 1819–20, under the command of Major Stephen B. Long. Compiled by Edwin James. 2 vols. 8vo. and Atlas, 4to. Philada. 1823.

A sketch of a Tour on the Continent in the years 1786–87. By James Edward Smith, M. D., F. R. S. 3 vols. 8vo. London, 1793.

Enleitung in die Conchylienfenntniss nach Linné, von Johann S. Schræter. 3 vols. 8vo. Halle, 1786. From the same, in exchange.

Annual Report of the Regents of the University of the State of New York, made to the Legislature, April 24, 1847. 8vo. Albany. From the Regents.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3, No. 10. From the Association.

Proceedings of the Boston Society of Natural History. Vol. 2, pp. 193 to 208. From the Society.

Letters were read:

From J. J. Bennet, Esq., Secretary of the Linnean Society

of London, dated Jan. 19, 1847, acknowledging the receipt of certain Nos. of the Journal, recently transmitted at the request of that Society.

From the Librarian of the Boston Society of Natural History, transmitting certain portions of the Proceedings of that Society, at the request of the Corresponding Secretary of the Academy.

From Miss Morris, of Germantown, dated July 20, 1847, addressed to the Corresponding Secretary, communicating the following in relation to the Hessian fly, and to the insect destructive to the Raspberry plant:

"I have great pleasure in handing to you a box containing the larvæ of the Cecidomyia, described by me in 1841, and a vial with those described by Dr. Fitch.

The difference is so marked that I think no doubt can arise in the mind of any one that there are two species.

The species in the vial were procured from New Jersey by Mr. Haines, and presented to me; from the same source I expect pupæ from which I hope to obtain the flies in September.

What has retarded the earlier development of the Larvæ in the centre of the straw it is impossible to conjecture, but I fear now they will all perish, as they have not attained more than half their growth, and the straw is all dead and ready for the harvest.

The three stems of raspberry which will accompany this, contain the nests of a Hymenopterous insect which has troubled us for some years, but whose history we were unacquainted with until this morning, when I discovered them, as as you will see, in the centre of the stem. In one you will find eggs, in another pupæ, and a third contains both pupæ and the perfect insect.

I am not prepared to say whether it be the parent or larva that causes the greatest injury, as I have not seen the worm feeding on the pith, but am well assured that they are too injurious to suffer them to remain unnoticed. This spring, in many of the gardens in this neighbourhood, entire rows of raspberries were blighted by them; it is said the worm fed on the pith, but I am in doubt, as I found a worm, which I am inclined to think was Lepidopterous, in their nest, but may have been a starved specimen of their own brood.

Since writing the above, I find that the worm feeds on the pith of the raspberry, and that its history is briefly this: the fly deposits its eggs in the new shoot or summer growth in the fall, and the worm feeds on the pith until the following July, when it undergoes its transformation."

A communication from Mr. Haldeman, intended for publication in the new series of the Journal of the Academy, entitled "Descriptions of Coleoptera, chiefly in the cabinet of J. L. Le Conte, M. D.," was read, and referred to the following committee: Dr. Leidy, Mr. Townsend, and Dr. Pickering.

Dr. Leidy requested permission, which was given, to change the name of a new genus of Entozoa, described by him in Vol. 3, No. 5 of the Proceedings, from that of *Cryptobia* to *Cryptoicus*, the former name having been preoccupied.

By permission of the Society, reports were presented by committees on papers by Dr. Gibbes, of South Carolina, Dr. J. L. Le Conte, of New York, and Dr. Joseph Leidy, read at recent meetings of the Society, recommending the same for publication in the Journal. The Reports were adopted.

Stated Meeting, August 10, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Fifty-seven specimens of shells, of the following genera, presented by Dr. Wilson:

Dolium, 1; Ostrea, 13; Aspergillum, 1; Chama, 1; Alasmodonta, 2; Unio, 1; Anodonta, 1; Mesodesma, 1; Sanguinolaria, 2; Pholas, 4; Solen, 3; Glauconome, 1; Cytherea, 5; Venus, 1; Solecurtis, 1; Pinna, 5; Circe, 1; Mactra, 1; Vulcella; Pecten, 3; Cardita, 2; Trigonella, 1; Modiola, 1; Arca, 3; Monoceros, 1; Psammobia, 1.

Mr. Conrad presented six specimens of shells of the genera Corbula, Cardita, Pecten, Cardium, Astarte and Ostrea.

Mr. Cassin presented a collection of African shells, and also a specimen of Unio Nicklinianus.

A number of shells from the Sandwich Islands. Presented by Mr. Gambel.

Egg of Rhea Americana. From Miss Griffith.

Eggs of Cassicus hæmorrhous ? C. icteronotus, Tinamus, (two species;) Opisthocomus cristatus, Tantalus loculator, Cyracus, Crotophaga major, Ardea alba, A. herodias, Crax alector, Psophia crepitans, Rallus ——, Platalea ajaja. Sterna cyanea, Charadrius ——?. Also, one egg of a Chelonian, and one of a Saurian. Presented by Mr. Wm. H. Edwards of New York.

Six specimens of fossils from the clay near Baltimore, and a collection of Silurian fossils. From Mr. Wm. S. Pease, of New York.

Anhydrous peroxide of Iron, from York county, Pennsylvania. Presented by Prof. Johnson.

DONATIONS TO LIBRARY.

Practical Geology and Mineralogy, with instructions for the qualitative analysis of minerals. By Joshua Trimmer, F. G. S. 8vo. From Dr. Griffith, in exchange.

Dizionario botanico-Italiano che compende i nomi volgari Italiani specialimenti Toscani a Vernacoli delle plante raccolti da diversi autori e dalla gente di campagnacol correspondente Latino Botanico compilatio dal dottore Ottaviano Targioni Tozzetti. 8vo. Firenze, 1825. From the same.

The fables of Æsop, part 2d: in the Chinese language. From Mr. John Morrison, of New York, through Dr. Watson.

Agricultural Botany: an enumeration and description of useful plants and weeds which merit the notice, or require the attention of American agriculturists. By Wm. Darlington, M. D. 12mo. Philadelphia, 1847. From the Author.

American Quarterly Journal of Agriculture and Science: conducted by Dr. E. Emmons and A. Osborn: Vol. 1. No. 2; Vol. 2, No. 1; Vol. 3, No. 1; Vol. 4, No. 1. From the Editors, in compliance with a request from the Society.

Same work, for July, 1847. From the Editors.

The following valuable works were deposited by Dr. Wilson:

North American Herpetology; or a description of the reptiles inhabiting the United States. By John Edwards Holbrook, M. D. 5 vols. 4to. Philadelphia, 1842.

Memoirs of the Geological Survey of Great Britain, and of the Museum of Economic Geology in London. Vol. 1. 8vo. London, 1846.

The London Geological Journal, No. 1, Sept. 1846.

The Quarterly Journal of the London Geological Society, Vols. 1 and 2, and No. 1, Vol. 3.

Abbildungen neuer oder unvollständig bekanntner Amphibien, nach der Natur oder dem Leben entworfen, herausgegeben und mit einem erläntunden Texte begleitit von Dr. H. Schlegel. 1 vol. 8vo. and Atlas, folio. Düsseldorf, 1837—1844.

Essai sur la Physionomie des Serpens: par H. Schlegel. 2 vols. 8vo., and Atlas, folio. La Haye, 1847.

Physical description of New South Wales and Van Diemen's land. By P. E. De Strzelecki. 1 vol. 8vo. London, 1845.

Voyage a Méroé, au Fluve blanc au delà de Fâzoql dans le midi du royaume de Sennàr, a Syouah et dans cinq autres oasis: fait dans les années 1819, '21 '22. Par M. Fréderic Caillaud, de Nantes. 4 vols. 8vo., and Atlas, 2 vols. folio.

The Medals of Creation: or first lessons in Geology, and in the study of organic remains. By Gideon A. Mantell, F. R. S. 2 vols. 12mo.. London, 1846.

Geological excursions round the Isle of Wight, and along the adjacent coast of Dorsetshire. 1 vol. 8vo. London, 1846.

Histoire naturelle des Animaux sans vertèbres. Par. J. B. P. A. De Lamarck. 10th edition. 11 vols. 8vo. London 1833 to 1845.

The Old Red Sandstone: or new walks in an old field. By Hugh Miller. 2d edition. 1 vol. 12mo. Edinburgh, 1842.

The British Miscellany. By James Sowerby, F. L. S. 12 numbers: Also the Malacological and Conchological Magazine, conducted by Geo. B. Sowerby, F. L. S. 2 Nos.: the whole bound in one volume, 8vo.

The Book of the great Sea-Dragons, Ichthyosauri and Plesiosauri, &c., with 30 plates copied from skeletons in the author's collection of fossil organic remains, (deposited in the British Museum.) By Thomas Hawkins, Esq., F. G. S. Folio. London. 1840.

A letter was read from Dr. C. Hering, of Philadelphia, dated July 31, 1847, in reference to a Museum of Natural History in Leipzig, under the direction of Prof. Pöppig, and asking on behalf of the latter, whether, and in what mode, certain objects of Natural History of this country could be procured for the same. Referred to the Zoological Committee.

The following communication was read from Mr. Wm. S. Pease, of N. Y., containing some remarks on the localities whence the fossils presented by him this evening were obtained:

"The basin of the Chesapeake and its tributaries, the Patapsco, Gunpowder, and other rivers, drain a vast number of shallow vallies, which have been rendered such by filling up with clay, mostly blue, sometimes variegated, containing stone, iron ore in nodular masses with lignite and sulphuret of Iron. Near Baltimore the ore is very abundant, whilst the pyrites and lignite are predominant lower down. The whole rests upon hornblende rocks. This clay is often intercalated with ferruginous sands and gravel. These gravels often unite and form a hard conglomerate rock, as the "White rocks" in the mouth of Patapsco river. The whole deposit is irregular in thickness, enlarging at some points and thinning off very much in others; varying much also in color and consistency. It is always, however, highly ferruginous in its composition, with one exception, and that in the case of a deep leaden or black colored clay, which, upon calcination, becomes white. Hayden, in his Geological Essays, speaks of lignite having been found in this strata with shark's teeth, &c., (doubtful.) The fossils accompanying this were found in a thin vein passing through the above clay formation, which enlarges very much near the city of Baltimore, and forms the hill known as Telegraph or Federal Hill, associated with lignite and sulphuret of Iron. Cucullias have been found at Bear creek, (emptying into the Patapsco) 5 or 6 miles from Baltimore, partly composed of earthy blue Phosphate of Iron. They were thrown out of an excavation for a well about 25 feet deep. With these, other fossil traces

were recognized, but they were not sufficiently distinct to be referred to any class.

These vegetable impressions I would refer to the Henopteris or Glossopteris, and are new.

In the Geological Report of the State, this formation is placed below the Tertiary."

The Chairman read a letter from Dr. Jeffries Wyman, dated Boston, Aug. 5, 1847, enclosing sketches of crania of a male and female supposed new species of *Orang*, inhabiting Western Africa, brought to this country by Dr. Thomas S. Savage. Information on the subject was requested from the Society.

Dr. Morton read a portion of a memoir designed for publication in the Journal, "On the position of the Ear in the statuary and paintings of the civilized nations of antiquity;" which was referred to a Committee consisting of Mr. Gliddon, Dr. Pickering and Dr. Wilson.

Dr. Leidy presented an instance of a curious optical illusion arising from a peculiarity in the structure of the intervertebral substance of man. He stated the external third of each disk to be composed of concentric layers of non elastic or white fibrous tissue, the fibres of which are oblique, those of the alternate layers crossing each other. This arrangement, when viewed from either side, gives rise to the appearance of alternating layers of white fibrous tissue, indicated by its shining whiteness and opacity, and of cartilage, indicated by its semi-transparency and dulness, and this is actually stated to be the arrangement in anatomical works generally, and even in the late and very excellent Physiological Anatomy of Messrs. Todd and Bowman.

The illusion is well marked: if a disk be held side-ways in the hand, and pins be stuck in what seem to be the alternating layers of cartilage, and then viewed from the other side, the pins will actually appear to have changed their position from the cartilage to the fibrous layers.

Dr. L. explained the illusion by supposing it to be produced in the one case from the rays of light reflected from the numerous points of the fibres, when the eye is opposed to them, giving rise to a divided, and consequently white, opaque surface, while in the other direction, the rays of light being partly transmitted by the extremities of the fibres, give rise to the characteristic dulness and semitransparency of cartilage.

By permission of the Society, a report was received from the Committee on Prof. Haldeman's paper, containing description of new Coleopterous Insects of the United States, recommending the same for publication in the new series of the Journal. The report was adopted.

Stated Meeting, August 17, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Nests of Cassicus icteronotus, and of C. hemorrhous. From Mr. Wm. H. Edwards, of New York.

A collection of Reptilia, in spirits. From Mr. Amory Edwards.

Fine specimen of crystallized Sulphate of Strontian. Presented by Dr. Wilson.

Native grains of Platinum. Presented by Dr. Joseph Leidy.

Mounted specimen of Argus giganteus. From Mr. Richard Oakford.

DONATIONS TO LIBRARY.

Essai de Formules botaniques, representant les caractéres des plantes par des signes analytiques qui remplacent les phrases descriptives, &c. Par N. E. Seringe et Guillard. 4to. Paris: 1836. From Dr. R. E. Griffith.

Histoire naturelle drolatique et philosophique des Professeurs du Jardin des Plantes, &c. Par Isid. S. De Gosse. 12mo. Paris, 1847. From the same.

The following were also received from Dr. Griffith, in exchange:—

Voyages d'un Naturaliste, &c. Par M. E. Descourtilz. 3 vols. 8vo. Paris, 1809.

A Narrative of four voyages to the South Seas, Pacific Ocean, &c., &c., from the year 1822 to 1831. By Capt. Benjamin Morrell. 8vo. New York, 1832.

Lepidoptera Americana; or original figures of the Moths and Butterflies of North America, &c. By Titian R. Peale. Vol. 1, No. 1. 4to. Philadelphia, 1833.

Dr. Wilson deposited the following:—

The Viviparous Quadrupeds of North America. By Audubon & Bachman. No. 23. Folio.

The Genera of Birds. By George R. Gray, F. R. S. 4to. No. 37.

The London Geological Journal. No. 2. Feb. 1847.

The Annals and Magazine of Natural History. No. 127. May, 1847.

The Quarterly Journal of the Geological Society of London. No. 10. May, 1837.

The Birds of Australia. By John Gould. No. 27. Folio.

The Zoology of the Voyage of H. M. S. Beagle, under the command of Capt. Fitzroy, R. N., during the years 1832 to 1836.—Birds: by John Gould, Esq., 5 parts:—Fishes: by the Rev. Leonard Jenyns, M. A. F. L. S., 4 parts.—Reptiles: by Thomas Bell, Esq. 4 parts. 4to.

Geology of the Beagle: 1st part, The structure and distribution of Coral reefs, by Charles Darwin, M. A., &c.; 2d part, Geological observations on the Volcanic Islands visited during the Voyage, by Charles Darwin. 8vo.

A History of British Starfishes, and other animals of the class Echinodermata. By Edward Forbes. 8vo. London, 1841.

Museum Leverianum: containing select specimens from the Museum of the late Sir Ashton Lever, with descriptions in Latin and English. By George Shaw, M. D., F. R. S. 4to. 1792.

On the fossil remains of the soft parts of Foraminifera discovered in the Chalk and Flint of the South-east of England. By Gideon Algernon Mantell, Esq., &c., (from the Philosophical Transactions, part 4, for 1846.) 4to. London, 1846. From the author.

A letter was read from Dr. Thomas S. Savage, dated Middletown, Conn., August 11th, 1847, in reference to the collection of objects of Natural History received from him, and announced at last meeting; also informing the Society of his intention to communicate some facts relative to the habits of some of the animals sent.

Dr. Leidy read a paper intended for publication in the Proceedings, entitled "Description and Anatomy of a new and curious subgenus of Planaria," which was referred to a Committee consisting of Mr. Haldeman, Dr. Pickering and Dr. Griffith.

Mr. Gambel presented a revised copy of his "Remarks on the Birds of California," intended for publication in the Journal. Referred to Messrs. Cassin, Townsend and Woodhouse.

Stated Meeting, Aug. 24, 1847.

Dr. Griffith in the Chair.

DONATIONS TO MUSEUM.

Twenty-three mineralogical and geological specimens from Lake Superior: and a specimen of a new species of Coluber from the same. Presented by Mr. Moss.

Mr. Robert Kilvington presented 1035 specimens, comprised in 345 species, of British Lepidoptera, viz: of Diurna 57 species, Crepuscularia 18 species, Pomeridiana 39 species. Nocturna 124 species, Semidiurna 107 species.

Eggs of forty-eight species of European Birds, and of thirteen American species; an Asterias; thirty-five species of American Lepidoptera, and a number of foreign Coleoptera. and 4 species of Crustacea. From Dr. T. B. Wilson.

A prepared specimen of Squatina Dumerili, taken in Delaware Bay. Presented by Messrs. Wilson, Cassin, and Leidy.

DONATIONS TO LIBRARY.

Description of a new species of Salamander. By Lewis R. Gibbes, of Charleston, S. C. (From the Boston Journal of Nat. Hist., Vol. 5. No. 1.) From the author.

Twelfth, 13th, and 14th Memoirs with reference to the law of Storms in India. By Henry Piddington. From the author.

Commentary on the Hindu System of Medicine. By T. A. Wise, M. D. 8vo. Calcutta, 1845. From H. Piddington, Esq.

Iconographie Ornithologique: publié par O. Des Murs. Livs. 1—8. 4to. Presented by Mr. Edward Wilson, of Wales.

Manuscript Geological Chart (coloured,) of the Silurian rock formations of North America. By Richard C. Taylor, F. G. S. From Mr. Taylor.

Dr. Leidy read a paper accompanied by drawings, of two new species of Planaria, which was referred to the following Committee: Dr. Griffith, Mr. Haldeman, and Dr. Pickering.

Dr. Leidy, stated in reference to the specimen of Squatina Dumerili, presented this evening, that it was a rare species. A description of it was first given by Mr. Leseuer in Vol. 1 of the Journal of this Society. His description is taken from three specimens, all males, each of which had six or seven distinct rows of teeth, 25 teeth in each row. The specimen on the table is a female, is four feet long, and has ten distinct rows of teeth, counting from before backwards, and five teeth in each row, in the lower jaw; and nine rows with the same number in each row, in the upper jaw. The intestinal canal is very simple, and has but one convolution in its course. The œsophagus is capacious and undefined from the stomach: both are strongly muscular.

Meeting for Business, Aug. 31, 1847.

Mr. Cassin in the Chair.

The Committee on the following papers by Dr. Leidy, read 17th and 24th inst., reported in favour of publication in the Proceedings.

Description and Anatomy of a new and curious sub-genus of Planaria.

By Joseph Leidy, M. D.

In October, 1840, Prof. S. S. Haldeman published a description of an animal under the name of *Planaria gracilis.** Upon examination I detected such a remarkable peculiarity in the digestive apparatus as led me to investigate its anatomy in detail, and to form for it a separate sub-genus, characterised as follows:

Phagocata, oblonga, plano-convexa, nuda, contractilis, mucosa, antica auricularia. Aperturæ duæ, ventrales, ad os et generationem pertinens. Proboscides multæ.

P. *gracilis*, nigricans, lateribus parallelis, postero acuto abrupte, plerumque antico recto; oculis duobus. Long. 9 lin., lat. 1 lin. Habitat in fontibus Pennsylvaniæ.

Description. Oblong, limaceform, naked, convex superiorly, flat inferiorly, very contractile; sides ordinarily parallel, convex when the animal is in a contracted state, convergent anteriorly when elongated; anterior extremity with a lateral triangular auricular appendage, straight in front, by contraction becoming convex or concave; posterior extremity abruptly pointed; ocelli two, anterior composed of an oblong, semi-transparent (nervous?) mass with an intensely black dot of pigmentum at the internal posterior part; ventral apertures two; oral aperture a little less than one-third the length of the body from the posterior extremity, and very dilatable; generative aperture halfway between the oral aperture and posterior extremity. Colour black or iron gray, and some younger specimens latericeous.

This animal I have only found in abundance in the neighborhood of Prof. Haldeman's residence, near Columbia, Pa. In a spring in front of his house, thousands of them may be seen gliding along the bottom; some of them occasionally creep up the sides to the surface of the

*Supplement to number one of "A Monograph of the Limniades, or Fresh-water Univalve Shells of North America," containing descriptions of apparently new animals in different classes, &c. By S. S. Haldeman. Philadelphia, 1840.

water, turn upon the back, and by making the ventral surface concave, float about in the manner of the *Limniadæ*. It appears to be carnivorous in habit, or at least it attaches itself to animal matter, dead or living, in preference to vegetable matter. When irritated, it throws out a considerable quantity of very tenacious mucus.

In structure it appears to be intermediate between the entozoic *Distomata* and the annulose *Hirudinæ*. I could not detect any trace of annulation, but I think that this alone would hardly be sufficient to place it lower than the latter animals, because, in a closely allied animal, the *Gordius aquaticus*, although there is no annulation in the perfect animal, yet in the embryo state I find it to exist.

The whole animal is composed of a delicate granular structure: the only approach to muscular fibre is in the longitudinal striation of the integument rendered more distinct by the pigmentum nigrum, a radiated appearance around the oral orifice, and a faint transverse and longitudinal arrangement of the granules entering into the composition of the proboscides, seen more or less distinctly in the continued movements of these organs when slightly compressed beneath the microscope.

The digestive cavity presents the same dendritic arrangements as in *Planariæ* generally,* but instead of posessing a single sucker or proboscis, the full grown animal has not less than twenty-three; varying, however, in this respect from three upwards, according to the age of the animal. One of these proboscides joins the digestive cavity at the posterior part of the anterior division, as usual, the others join the remaining two divisions at their internal side in their course backwards. They are considerably longer, but narrower than in *P. lactea*,† and when not in use are closely packed together within the animal, so that when the latter is placed beneath the microscope and slightly compressed, they will be seen pressing upon one another in such a manner, that if one changes its position, it will be instantly occupied by another. Those which are formed last are smallest, but they soon gain their full size.

When the animal feeds, the whole of them are protruded from the oral orifice, the longest extending out full one-third the length of the body. As they are all convergent to the same orifice, when fully protruded the animal becomes puckered up and increased in breadth at the expense of the length. In this state the anterior extremity is erected and the posterior brought nearly to a right angle with it, so that it looks as if sitting upon its prey apparently unconcerned, with its pro-

*Duges, An. Sc. Nat. †Ib.

boscides, which writhe and twist about as if they were totally distinct organisms.

If one of these animals be punctured or cut, one or more of the proboscides will be immediately protruded as if they existed under pressure, and will move about in all directions appearing as if entirely without the control of the animal; or if one of the animals be crushed between two slips of glass so that the proboscides will be torn from their attachment, they move about involuntarily, always in a line forwards or towards the mouth, which they do by contracting the stomachal extremity towards the oral, the latter remaining fixed. In this progressive course they constantly contract and dilate; the mouth opens and any matter in its vicinity rushes in, when it is closed and the matter passes onwards, and by the alternate contraction and dilatation of different parts of the same tube, it is thrown backwards and forwards several times, and finally violently expelled at the tornex-tremity. When they have escaped from the ruptures of the tegument produced by crushing, or when snipped off with a pair of scissors whilst an animal is feeding, they will present the same curious phenomena. In fact these curious independent movements caused me at first to mistake the organs for viviparous young, and it was not until I had frequently observed the animal feeding, and examined its structure beneath the microscope, after having fed them upon coloured food, that I was convinced of their true nature.

Excrementitious matter is expelled from the digestive cavity through the same course by which the food enters.

Circulation. There appears to be nothing peculiar about the arrangement of the blood vessels, if such they be; the term being applied to two semitransparent lines passing along each side of the ventral surface, and a third along the middle of the dorsal surface, the three freely communicating with each other by transverse lines and numerous smaller branches, the whole forming an extensive reticulation upon the surface of the body. At the anterior part of each ventral line, I distinctly observed a dilatation to exist.

Generative apparatus. As in all *Planariæ* the animal is androgynous. The penis is a bulbiform organ placed between the oral and generative orifice with its point directed towards the latter. The point is straight, or contorted; the bulbous portion is also changeable, sometimes elongated, at others flattened or increased in breadth at the expense of the length. The bulb shows through the thin integument, and without close examination may be taken for a third orifice. The penis is perforate, and has a dilated cavity within the bulb. Immediately above the penis I indistinctly observed a somewhat lobated organ, which appeared to join the penis at its base by a narrow por-

tion. This is probably the testicle, for it was the only thing I could discover in connection with the genitalia to correspond to it.

In two individuals only could I see part of the female organs. This consisted in two sigmoid tubes or oviducts, which could be traced from the generative orifice a short distance forwards, one on each side of the penis.

I could detect no traces of a nervous system.

The eyes, so called, have been previously described. It is still a question with many, whether these, as well as the corresponding deep black points existing in very many of the lower animals of the invertebrate series, subserve the purpose of eyes; and some anatomists have even gone so far as to deny the sense of sight to the comparatively perfect eye of many gasteropodous mollusca. The experiments which are made to test the existence of this sense in those organs for the most part are exceedingly fallacious, generally being performed by concentrating the light upon them through a lens. Insects, and even serpents and frogs, I find will frequently bear the impression of a sudden glare of light produced in this way without any inconvenience, at other times they will seek to avoid it, but *Helix albolabris* will occasionally retract its tenticle when so disturbed, and *Phagocata* will frequently raise its anterior extremity and move from the too great light. From their position, which is always such as to be well exposed to the influence of the light, from their structure, imperfect as it is in many cases, and their connection with the nervous system when this exists, I am led to conclude that in all cases they are organs of vision.

The general sensibility of *Phagocata* is very considerable, that is it contracts with great readiness from the slightest disturbance. The contraction has much the appearance of being involuntary and is very like that of the *Medusæ*. When an individual is irritated at any point, contraction commences and thence rapidly extends throughout the animal, and the only appearance of volition is in the effort to escape, but if the touch be too rude, apparently involuntary contraction takes place suddenly and appears to destroy all power of volition for the moment; the animal however soon revives from this state and glides off with its accustomed speed.

Some experiments which I performed upon *Phagocata* confirm the statements that the *Planariæ* are capable of repairing injuries. When an individual is cut into two, both parts after a time become distinct and perfect animals. Division carried to a greater extent in some instances results in as many perfect animals as there are parts, but generally I have found that when cut into more than three or four

pieces, the intermediate pieces are apt to die, and sometimes the extremities do not survive.

I exhibit a drawing of *Phagocata gracilis*, from Prof. S. S. Haldeman.

A drawing of two individuals feeding upon a piece of a *Lumbricus*.

Do., representing a ventral surface with the proboscides protruded.

Do., representing the digestive and generative apparatuses.

Do., representing five of the proboscides highly magnified.

Description of two new species of Planaria.

By Joseph Leidy, M. D.

Planaria maculata. Superiorly convex, faintly blackish or brownish with irregular colorless maculæ; inferiorly flat, colorless; anteriorly trapezoidal; posteriorly spatulate or oval; eyes two, anterior, proximate, composed of a large semi-transparent mass with a reniform mass of pigmentum nigrum at the postero-internal part; oral aperture ventral, one-third the length of the body from the posterior extremity; proboscis large and cylindrical. Length $2\frac{1}{4}$ lines; breadth $\frac{1}{2}$ line. Found in moderate abundance, in the ditches below the city, creeping upon the submerged stems of aquatic plants.

Subgenus. Prostoma, Duges. Mouth anterior and terminal.

Prostoma marginatum. Blackish, narrow lanceolate, anteriorly truncate; marginate, margin delicately striate; mouth large; proboscis large and oblong; eyes two, anterior, distant, each consisting of two round masses of pigmentum nigrum in contact with each other, and of which one is larger than the other; generative orifice one-fourth the length of the body from the posterior extremity. Length 1 line. A single specimen found with the preceding; but probably not rare, for from its small size, it escaped my notice while collecting some of the former, and it was not until I got home that I detected its existence in the vessel of water containing the others.

The anatomy of *P. maculata* does not differ from that of *Planaria lactea* as given by Duges in the Annales des Sciences Naturelles. In *Prostoma marginatum* the digestive cavity has not the dendritic arrangement of Planaria, but merely consists of a large capacious sac extending as far back as the posterior third of the body, and having a cœcum upon each side of the proboscis. The penis has a yellow color and consists of a round granular mass, with a moderately long and bent spiculum projecting from its posterior part. The arrangement of a female apparatus I failed to trace.

Amendments to Articles 7 and 8, of Chap. vii. of the By-laws, proposed by Dr. Bridges, were adopted.

These Articles now read as follows:

"Art. vii.—Members may borrow books, the property of the Academy, from the Librarian, on signing a promissory note for fifty dollars, which shall become void on the book being returned."

"Art. viii.—But no works shall be loaned from the Hall, on any account whatever, except those marked with an asterisk (thus *) in the Catalogue, unless by an affirmative ballot vote of three-fourths of the members present when the application is made; and in case of deposited books the written consent of the depositor having been previously obtained: the name of the borrower and the title of the book to be recorded on the minutes, and security given for its safe return by note or otherwise for the full value thereof, according to the estimate of the Librarian or Library Committee."

On motion of Dr. Leidy, a committee was appointed to examine into the expediency of converting the present lecture room into a portion of the Museum, and also to ascertain what alterations may be necessary for this purpose, &c., and to report thereon as soon as practicable. Committee, Drs. Bridges, Wilson and Morton.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. SEPT. AND OCT., 1847. No. 11.

Stated Meeting, September 7, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Dr. Wilson presented sixty-five specimens of recent Corallines, comprising forty species of the genera Fungia, Polyphyllia, Caryophyllia, Megaphyllia, Meandrina, Agaricia, Tridacophyllia, Astrea, Asteriopora, Oculina, Gemmipora, Madrepora, Palmipora, Alocopora, Porites, Pocillopora, Tubipora, Porites, Gorgonia.

Mr. Sowerby, of London, presented specimens of Gorgonia palma, and G. petechizans.

Mr. T. A. Conrad presented an extensive collection of Fossils, consisting of about 2000 specimens, from the Miocene of France, and the Eocene, Cretaceous, Oolitic, Mountain limestone, and Silurian formations of England and France.

A small collection of Minerals from Chester county, Pennsylvania. Presented by Mr. Percival.

Fine specimen of $\frac{1}{16}$ crystallized Carbonate of Lead, from North Carolina. From. Mr. W. S. Vaux.

Saturnia cecropia, and S. promethea, three fine specimens. From Mr. Benjamin H. Kern.

Dr. C. D. Meigs presented a living specimen of Trionyx ferox, from Georgia.

DONATIONS TO LIBRARY.

A history of the molluscous animals from the counties of Aberdeen, Kincardine, and Banff, to which is appended an account of the Cirripedal animals of the same district. By Wm. Macgillivray, A. M. 12mo. London: 1843. From Mr. Peterson.

An account of the measurement of two sections of the Meridional Arc of India, bounded by the parallels of 18°, 3′, 15″, 24°, 7′, 11″, and 29°, 30′, 48″. Conducted under the orders of the Hon. East India Co., by Lieut. Col. Everest, F. R. S. &c. 1 vol. 4to., and an Atlas 4to. London, 1847. From the Author, by order of the Court of Directors of the E. I. Co.

The Literary Record and Journal of the Linnean Association of Pennsylvania College, Vol. 3. No. 10. From the Association.

American Journal of Agriculture and Science, conducted by Dr. E. Emmons and A. Osborn, Esq. August, 1847. From the Editors.

Monografia del genere Murex ossia enumerazione delle principali speciei dei Terreni sopracretacei dell' Italia, per Giovanni Michellotti. 4to. Vicenza, 1841. From Mr. Conrad.

Annals of the Lyceum of Natural History of New York. Vol. 4. Nos. 10, 11. July, 1847. From the Lyceum.

Experiments and observations on Animal Heat, and the inflammation of combustible bodies. By A. Crawford, M. D., F. R. S., &c. 1 vol. 8vo. 2d edition. London, 1788. From Mr. L. J. Germain.

Experimental researches on Electricity. By Michael Farraday, D. C. L., F. R. S., &c. 2 vols. 8vo. London, 1839–44. From the same.

Dr. Wilson deposited the following:

The Genera of Diurnal Lepidoptera, &c. By Edward Doubleday, F. L. S., illustrated by Wm. C. Hewitson. Parts 1–9. 4to.

Catalogues of the Specimens of Mammalia, Birds, Reptiles, Insects, Crustacea, and Myriapoda, and a list of the Osteological specimens, contained in the British Museum.

Odontography; or a treatise on the comparative anatomy of the teeth, their physiological relations, mode of development, and microscopic structure in the vertebrate animals. By Richard Owen, F. R. S. 2 vols. large 8vo. London, 1840, '45.

A geological survey of the Yorkshire Coast; describing the strata and fossils occurring between the Humber and the Tees, from the German Ocean to the Plain of York. By the Rev. George Young, A. M., and John Bird, Artist. 4to. Whitby, 1822.

Travels in Lycia, Milyas, and the Cibyratis, in company with the late Rev. E. T. Daniell. By Lieut. T. A. B. Spratt, R. N., and Prof. Edward Forbes, F. R. S. 2 vols. 8vo. London, 1847.

Illustrations of Indian Zoology, chiefly selected from the collection of Major General Hardwicke, F. R. S. By John Edward Gray, F. R. S. 2 vols. folio. London, 1830–34.

A History of British Reptiles. By Thomas Bell, F. R. S. 8vo. London, 1837.

An Analysis of the natural classifications of Mammalia, for the use of Students and Travellers. By T. Edward Bowdich, F. R. S. 8vo. Paris, 1821.

An Introduction to the Ornithology of Cuvier. By T. E. Bowdich. 8vo. Paris, 1821.

Elements of Conchology, including the fossil genera and the animals. By T. E. Bowdich. 8vo. Paris, 1822.

The Canadian Naturalist; a series of conversations on the natural history of Lower Canada. By P. H. Gosse. 8vo. London 1840.

A Manual of British vertebrate animals. By the Rev. Leonard Jenyns, M. A. 8vo. Cambridge, 1835.

Description des Coquilles et des Polypiers fossiles des terrains tertaires de la Belgique. Par. P. H. Nyst. 4to. Bruxelles, 1843.

Manual d'Ornithologie, ou tableau systematique des Oiseaux qui se trouvent en Europe, &c. Par J. C. Temminck. 2nd. edition. 4me Partie. Paris, 1840.

Revue critique des Oiseaux d'Europe: Par Mr. H. Shlegal. 8vo. Leide, 1844.

Joannis Raii synopsis methodica Avium et Piscium, cum appendica et iconibus. 12mo. Londoni. 1713.

Ornithologia, sive synopsis methodica sistens Avium divisionem in ordines, sectiones, genera, species, ipsarumque varietates. A. D. Brisson. 2 vols. 8 vo. Lugduni Batavorum, 1743.

Dissertatio Zoologica enumerationem Mammalium Capensium continens. Auctore Johanne Smuts. 4to. Leidæ, 1832.

Systema Avium: acutor Dr. Johannes Wagler; pars prima. Stuttgartiæ, 1827.

The London Geological Journal, No. 3. May, 1847.

The Annals and Magazine of Natural History. Nos. 128, 129, 130.

Proceedings of the Zoological Society of London: January 12th to May 25th, 1847.

Sowerby's Mineral Conchology, Nos. 106 to 113.

Report of a Committee appointed by the British Association, to consider of the rules by which the nomenclature of Zoology may be established on a uniform and permanent basis. 8vo. pamphlet.

Report on the recent progress and present state of Ornithology. By H. E. Strickland, M. A., &c. 8vo. pamphlet. London, 1845.

Dr. Morton read a paper by Dr. R. W. Gibbes, of Columbia, S. C., describing new species of Squalides from the Ter-

tiary Beds of that State; which was referred to a Committee consisting of Drs. Leidy, Morton, and Pickering.

A letter was read from Col. Everest, dated Claybrook Hall. Lutterworth, England, July 17th, 1847, presenting his work announced this evening.

The Committee, to whom was referred the consideration of the propriety of altering the Lecture room, and adapting it to the purposes of the Museum, reported in favor of the same, and submitted a plan, which was approved; and resolutions were adopted, authorizing the Committee to commence the work as soon as practicable.

Stated Meeting, September 10, 1847.

DR. MCEUEN in the Chair.

DONATIONS TO MUSEUM.

Dr. F. Rœmer, of Berlin, presented the following fossils from the Green Sand of Germany. Thracia 1 species; Mya 1; Heteropora 1; Tragos 1; Exogyra 3; Isocardia 1; Serpula 1; Nucleolites 1; Terebratula 6; Ceriopora 2; Alocolites 1; Scyphias 2, Ostrea 1; Belemnites 1; and 1 ear bone of a fish. Also, one specimen of Echinolampus, from the Middle Tertiary of Germany.

Dr. T. B. Wilson presented the following mounted specimens of Mammalia. Hylobates leuciscus, H. syndactylus, Ateles beelzebub, Sus scropha from Java, Felis leopardus, F. minuta, F. leo (young,) Ursus labiatus, Paradoxurus typus, Manis pentadactylus, Antelope tragulus, A. pygmæa, Viverra indica, V. genetta, Cervus muntjac, Moschus javanicus, Didelphis cancrivora, D. minuta, Canis vulpes (Europe,) Talpa Europœa, Sciurus striatus, Lutra barang, Herpestes mungoz, Dicoteles torquatus,

Bradypus tridactylus, (2 specimens,) Dasypus novemcinctus, (young) Myrmecophaga didactyla, M. bivittata. Also, an albino Kangaroo, from the Menagerie of the King of Holland, an unique specimen, and supposed to be a new species.

DONATIONS TO LIBRARY.

Diagnoses Conchyliorum terrestrium et fluviatilium. Von E. A. Rossmässler. Hefts. 1 & 2. From Dr. R. E. Griffith.

Gelehrte anzeigen herausgegeben mitglieden der f. bayer. Academie der Wissenschaften. Vols. 16—23. From the Academy.

Die ueberbleibsel der altägyptischen menschenrace. Von Dr. Franz Pruner. 4to. Munich, 1846. From the same.

Abhandlungen der Mathematisch-physikalischen classe der Kœniglich bayer, Acad. der Wissenchaften. Vol. 4, p. 3. 4to. From the same.

Bulletin der Kœniglich Acad. der Wissenschaften. An. 1846, Nos. 1—7, 1847. From the same.

Almanach der K. bayer. Acad. der Wissensc. fur das jahr 1847. From the same.

The organization of Trilobites, deduced from their living affinities, with a systematic review of the species hitherto described. By Heermann Burmeister, M. D. Edited from the German by Profs. Bell and Forbes. Folio. London: 1847. Deposited by Dr. Wilson.

The Genera of Birds, by George Robert Gray. Nos. 38 and 39. 4to. From the same.

The Birds of Australia. By John Gould. Parts 28 and 29; Folio. From the same.

The Zoology of the Voyage of H. B. M. Erebus and Terror. No. 10, 4to. From the same.

Oken's Isis; 38 vols., from 1817 to 1844, inclusive. 4to. Also No. 4, for 1847. From the same.

Archiv. für naturgeschichte. Von A. F. A. Wiegmann; 11 vols., 1835 to 1846, and No. 1, 1847. From the same.

Histoire naturelle des Oiseaux d'Afrique; per Francois Le vaillant. 6 vols. folio. Paris, 1799—1808. From the same.

Histoire naturelle des Oiseaux; par M. de Buffon, (planches enluminees,). 10 vols., folio. Paris, 1771—1786. From the same.

Revue Zoologique, par la Société Cuvierienne. Nos. 3, 4, 5, and 6, for 1847. From the same.

Petrifactions recueillies en Amerique par Mr. Alex. de Humboldt, et par Mr. Charles Degenhardt; décrites par Léopold de Buch. Folio. Berlin, 1839. From Mr. T. A. Conrad.

Sur les spirifers et les Orthis; explication de deux planches, qui representant la structure des ces coquilles. Par Léopold de Buch. Folio. From the same.

Explication de trois planches d'Ammonites; par Léopold de Buch. 4to. texte, planches folio. From the same.

American Journal of Science and Arts, 2d series, No. 11. Sept., 1847. From the Editors.

On the growth of plants in closely glazed cases. By N. E. Ward, F. R. S. 8vo. London; 1842. From the author, through Dr. Asa Gray.

Note upon Carex loliacea, Lin. and C. gracilis, Ehrh. By Asa Gray, (from Silliman's Journal, vol. 4.) From the author.

Voyage botanique le long des côtes septentrionales de la Norvège depuis Drontheim jusqu' au Cap nord : par Ch. Martins. From the author.

List of Osteological specimens in the collection of the British Museum. 12mo. London, 1847. From the Trustees.

Catalogue général de Hector Bossange. Paris, 1843–47. From E. Bossange, Esq., of New York.

A letter was read from the Royal Academy of Sciences of Munich, acknowledging the receipt of certain Nos. of the Proceedings.

Dr. Hallowell read a description of a new species of Coluber, (C. venustus, Hal.) from Copper Harbor, Lake Superior, which was referred to a committee, viz: Dr. Pickering, Mr. Phillips and Prof. Baird, of Carlisle.

Dr. Leidy read a paper on the Fossil Horse of America. Referred to Drs. Morton, Hallowell and Pickering.

Mr. Townsend exhibited a living specimen of the common mouse, (Mus musculus) which possessed the remarkable peculiarity of uttering notes resembling those of a singing bird. The notes were uttered in very rapid succession, and although weak, could be readily distinguished at the distance of several yards. The animal was recently taken in an ordinary trap, by a lady residing in the Northern Liberties.

Dr. Warrington, of England, exhibited and explained the modus operandi of an instrument of his own invention, which he called *Spirometer*, the object of which he stated to be, to test the capacity of the lungs in health and disease. "The amount of cubic inches of air the lungs are capable of expelling, being always in proportion to the height of the individual, and a scale attached to the instrument indicating with accuracy any diminished capacity, a standard of health and disease could be thus readily fixed, and the disorganization or contraction of the organ early detected."

Meeting for Business, Sept. 28, 1847.

MR. PHILLIPS in the Chair.

The Committee to whom was referred the following paper, by Dr. Leidy, reported in favor of publication in the Proceedings.

On the Fossil Horse of America.

BY JOSEPH LEIDY, M. D.

The fact of the existence of fossil remains of the horse in America has been generally received with a good deal of incredulity, arising, perhaps, from the mere fact being stated of their having been found, often without even mentioning the associate fossils, and in all cases, previous to Mr. Owen,* without describing the specimen. At present their existence being fully confirmed, it is probably as much a wonder to naturalists as was the first sight of

* Zoology of the Voyage of the Beagle, part 1. By R. Owen, Esq. London, 1840.

the horses of the Spaniards to the aboriginal inhabitants of the country, for it is very remarkable that the genus Equus should have so entirely passed away from the vast pastures of the western world, in after ages to be replaced by a foreign species to which the country has proved so well adapted; and it is impossible, in the present state of our knowledge, to conceive what could have been the circumstances which have been so universally destructive to the genus upon one continent, and so partial in its influence upon the other.

The remains are by no means unfrequent, and according to William Cooper, the author of a paper entitled "Notices of Big-Bone Lick," in Featherstonhaugh's "Journal of Geology,"* the first printed notice of them occurs in Mitchell's "Catalogue of Organic Remains,"† upon referring to which, I find mentioned pp. 7, 8, that a cervical vertebra and teeth of the horse were found associated with the *Mastodon*, &c., in a tract extending from the base of the Neversink Hills to Bordentown, New Jersey. The author of "Notices, &c." also mentions the remains of the horse being found at Big-Bone Lick, but speaks doubtfully as to the authenticity of such remains having been found in a fossil state in this country, and says, p. 208, "I saw nothing in support of it myself, nor have I met with any person who could answer for such a fact from his own careful observation."

Dr. Harlan‡ mentions the sparing existence of fossil remains of the horse, which, from the heading of his chapter, he has referred to the same species as the existing Equus caballus.

The most satifactory account, however, with which I am acquainted, is given by Mr. Owen in the Zoology of the Voyage of the Beagle, Part 1, Fossil Mammalia, p. 109, and is derived from two teeth obtained by Mr. Darwin in South America. One of them, a superior molar, was far decomposed, and Mr. Owen observes, "every point of comparison that could be established, proved it to differ from the tooth of the common Equus caballus only in a slight inferiority of size." The other a superior left molar, was found with the *Mastodon*, &c., in the province of Entre Rios, and is figured (Pl. xxxii. figs. 13 and 14,) in the work. One of the figures represents an antero-lateral view of the tooth, and is rather smaller in size, and is much more curved than in the corresponding tooth of the recent E. caballus. The other figure represents the crown of the tooth and indicates the diameters to be somewhat less. From what Mr. Owen remarks in the "British Fossil Mammalia,"§ this is a species which he proved to be distinct from all European fossil and existing species, and from the greater degree of curvature of the upper molars‖ he has designated it under the name of Equus curvidens. In the cabinet of the Academy there are a number of specimens of American fossil horse teeth, which I refer to two distinct and well marked species.

The first of these I consider as identical with the Equus curvidens, of which

*Philada., 1831, vol. 1, p. 208. †New York, 1826.
‡Med. and Phys. Researches, Philada., 1835, p. 267.
§London, 1846, p. 398.
‖Odontography. By R. Owen, Esq., London, 1840-45, vol. 1, p. 575.

there are ten specimens of permanent molars, one a superior posterior molar of the left side, and five inferior molars of the right side, and four of the left side. These were all obtained from that celebrated fossil bone deposit, Big-Bone Lick, Kentucky, where they were associated with the *Megalonyx*, *Mastodon*, &c., and are a part of a donation to the Academy by Mr. J. P. Wetherill. The external cementum is almost entirely removed, and the color, which is brown in the inferior molars, a bluish black in the superior molars, corresponds with that of their fossil associates. They are very little inferior in size, both in length and diameter, to the corresponding teeth of the recent E. caballus. The lateral diameter of the inferior molars hardly varies at all, the difference existing in the transverse diameter, which gives to the teeth a rather more compressed appearance. The superior posterior molar tooth in all species of Equus is much curved, so that but little difference is observable in this respect in the fossil specimen. The bodies of the inferior molars are considerably more curved laterally than is usual in the corresponding teeth of the recent horse, which fact, however, was not to be expected from the greater degree of curvature in the superior molars.

The enamel folds generally are more delicate, but I do not find sufficient peculiarity in their course to render them characteristic. On comparing the crowns of these fossil molar teeth, with the recent species, I find a remarkable degree of resemblance to exist, and in fact, greater differences may be found in this respect, in different individuals of the existing species. The posterior part of the enamel folding of the posterior tooth is rather narrower, and has a deeper groove upon the outer side than I have seen in the recent tooth. The superior molars lead to more positive results than the inferior, yet it is necessary to be very careful, for if we do perceive more differences in these particular teeth in different species, than exists in the inferior teeth, so also do we find a greater variation among them in different individuals of the same species. This variation in the same species is very striking in the case of the posterior tooth of the recent horse, as may be seen by comparing any number of specimens. In this particular tooth in the recent horse, there is always a disposition to the formation of a third isolated enamel fold, always small and posterior to the others. Sometimes it appears as if the disposition existed, but for want of room in the process of development of the tooth, the ordinary posterior, isolated enamel fold becomes united by an isthmus to the peripheral fold. In the fossil tooth no disposition of the kind has existed, so that it has more the appearance of the other molars, and indicates a less amount of room for development, and consequently a smaller jaw.

From the foregoing description it will be perceived that I have fixed upon no absolute characters for determining this species with any degree of accuracy, and that this is not possible, I may state upon the authority of Cuvier, who acknowledged his incompetency to find characters, "assez fixes," to pronounce upon any species of horse, examined by him, from an isolated bone,* and it is therefore only from their being fossil American teeth coinciding with the E.

*Cuvier, Ossemens Fossiles, 4 Ed. T. 3, p. 216.

curvidens as described by Mr. Owen, more than with any other species, so far as I am capable of judging, which has made me refer them to that species.

The second species is founded upon twelve specimens of teeth which have been deposited in the cabinet of the Academy by our enterprising fellow-member, Dr. M. W. Dickeson, and is one only of the many important results of his palæontological researches in the southwestern part of the United States. Ten of these interesting relics, consisting of five superior and five inferior molars, Dr. Dickeson states,* were obtained, together with remains of the *Megalonyx*, *Ursus*, the *os hominis innominatum fossile*, &c., in the vicinity of Natchez, Mississippi, from a stratum of tenacious blue clay underlying a diluvial deposit. The remaining two, both right superior posterior molars, are rolled or water-worn, and were found, as Dr. D. informs me, upon one of the Natchez Islands, in the Mississippi River. All the specimens have the exterior cementum entirely removed, with the exception of one inferior molar of the right side, in which it still exists upon the external face, and much of the inferior cementum, and part even of the dentine, is also destroyed, so that the enamel folds everywhere stand out in strong relief.

These teeth are larger than those of any species heretofore known, recent or fossil, and must have belonged to a horse, which, in point of magnitude, was a fit cotemporary for the *Mastodon*, *Elephas*, *&c.*, and worthy of the large continent which produced it, and I have therefore named it *Equus Americanus*.

Two of the inferior molar teeth measure 4.3 inches in length, with a lateral diameter of 1.25 of an inch, and a transverse diameter of .7 of an inch. Two also, of the superior molars, measure 3.9 inches in length externally with a lateral diameter of 1.2 of an inch, and a transverse diameter of 1.1 of an inch. The inferior molars are curved from without inwards, instead of laterally, as is usual. The superior molars are curved to a degree intermediate to that of the *Equus caballus* and *Equus curvidens*.

The enamel folds are one-fourth thicker than in the recent horse and the isolated enamel folds of the superior molars are much more plicated, resembling in this respect the *Equus plicidens*, Owen. In one of the two superior posterior molars, there is an additional or third isolated enamel fold, which is oval, and two or three times larger than in the recent horse, and in the other there is a fourth, small, round, isolated enamel fold. Both of these teeth indicate a greater amount of room for development, and consequently a larger jaw. Other and considerable differences will be noticed upon comparing the figures 2 and 3, representing the crowns of these teeth, especially at the posterior part, which might lead to the supposition that they belonged to distinct species, but from the general characters of the two specimens, added to reasons before stated, relative to the amount of variation existing in the corresponding tooth of the recent horse, I cannot but think they both belong to Equus Americanus.

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*Proc. Acad. Nat. Sci., vol. 3, p. 106.

There is in the cabinet but one remaining tooth, to which I shall refer. This is an inferior middle molar of the left side, in an excellent state of preservation, and is a beautiful specimen; the whole of the exterior cementum being preserved without a fissure, apparently through the agency of oxide of iron and siliceous matter, which have rendered it as hard as the dentine itself. It was found with the bones of the *Mastodon*, *Megatherium*, *Harlanus*, &c. in making the excavation for the Brunswick Canal, near Darien, Georgia, and was kindly presented to the Academy by Mr. J. H. Couper.

It is straight, and although not longer than the corresponding tooth of the recent horse, with a very little increase in the diameters, character enough cannot be found in it to consider it distinct from the Equus Americanus.

References to the Figures.

Figs. 1 and 6, and 4 and 5, were taken from the same specimens.

Fig. 1. Crown of a superior middle molar of the left side; antero-posterior measurement 1.2 in., transverse 1.1 in.

Fig. 2. Crown of the superior posterior molar of the right side; antero-posterior measurement 1.3 in., transverse 1.9 in.

Fig. 3. Do. from another specimen.

Fig. 4. Crown of an inferior middle molar of the right side; antero-posterior measurement 1.25 in., transverse .7 in.

Fig. 5. Internal view of an inferior middle molar of the left side; greatest length 4.15 in.; depth of its curve .15 in.

Fig. 6. Antero-lateral view of a superior middle molar of the left side; greatest length 3.9 in.; depth of curve .3 in.

The Committee on the following communication, by Dr. Gibbes, of South Carolina, reported in favour of publication in the Proceedings.

Description of new species of Squalides from the Tertiary Beds of South Carolina.

By ROBERT W. GIBBES, M. D., Columbia, S. C.

1. CARCHARODON *Mortoni*.—I have only two specimens from the *Eocene*, both broken. That, of which a cast is in the collection of the Academy, was probably four inches deep, and three inches across the roots; the upper third is wanting. It is somewhat inequilateral—the anterior edge sloped inwards, and the posterior arched—both the outer and inner surfaces are convex and prominent, the latter trebly so. The enamel is thin but strong—cracked in striæ parallel to the edges, and as in most other species converging and disappearing towards the apex:—it is sloped on the inner face. The cutting edges are finely indented, the denteiures (if I may be allowed to adopt an expressive word from the French) are very small, and more minute near the base of the enamel. Next the edges on both faces is a longitudinal flattening, giving the appearance of undulations. The root is immensely thick, an inch and a half, and constitutes more than half of the bulk of the tooth. The root is concave, but the extremities being broken, the form cannot be

given; the structure of the dentine is not as compact as in *C. megalodon.* A partial description of this fine species was given in a previous paper published in the Proceedings of the Academy, when I named it after the distinguished pioneer of Tertiary Geology in the United States, Dr. Samuel Geo. Morton.

2. CARCHARODON *acutidens.*—This beautiful species resembles *C. angustidens*, Agassiz, but is very acutely pointed. Of four specimens which are in my cabinet, the largest cone measures three inches, and it is more than three times the depth of the root, which is concave, very thick and prominent on the inner face. The body of the tooth, or enamelled portion is conical, the lower third swollen, widest next the lateral denticles which are distinct from it. The inner face is arched, while the outer is nearly flat, though undulated by depression next the edges, and having a deep furrow longitudinally in the middle near the base of the enamel, which extends to the root. This does not extend as low on the inner face, and is sloped, leaving an interspace next the root. The cutting edges are sharp and finely indented, the serratures very close. Most of the specimens are straight, but I have two which are oblique. There are examples of this species in the Cabinet of the Academy.

3. CARCHARODON *lanciformis.*—Very flat, acutely pointed, triangular, nearly equilateral, the posterior edge slightly sloped, while the anterior is straight. The root is not much thicker than the base of the cone, very concave, the rami not symmetrical, one being much longer than the other; in the small lateral teeth this, however, is scarcely perceptible. The edges are sharp and finely indented; the inner face elevated; the outer plane, in some specimens concave. Viewed laterally, some are much bowed or arched forward. In the middle of the outer face near the base of the enamel, is a longitudinal depression, the sides of which are elevated and unite above the horizontal middle line, and form a ridge to the apex. It has lateral appendages, which are not distinct from the principal coné. The enamel extends lower on the outer face than on the inner.

I have a series of specimens from the Eocene beds of Ashley and Cooper rivers, S. C.

4. OXYRHINA *Desorii.*—Prof. Agassiz described under this name specimens which subsequent experience induces him to consider identical with *Lamna cuspidata*, with which he had noticed a resemblance.

I take pleasure in restoring the name of the distinguished M. Desor, the friend and co-laborer of M. Agassiz, in this department of science, to a fine species in my cabinet.

It is very massive—thicker than any other of this genus—in this respect resembling *Oxyr. crassa*, but not so broad. Viewed *en profil*, the form is similar to *Lamna Hopei*, much curved inwardly, except near the apex, which is flat. The edges are cutting in their whole extent, the base of the enamel arched, and nearly equal on both faces, the root very thick, compact and

heavy. I have six specimens from the *Miocene*, and three from the *Eocene* of South Carolina.

5. OXYRHINA *Sillimani*.—Among twelve specimens from the *Eocene*, there is much uniformity in this species. The cone is straight or very slightly bowed on the inner surface, equilateral, acutely pointed, both surfaces convex, the inner much more so. A peculiarity exists in the great breadth of the enamel at the base, which is similar on both aspects. The root is thick, and forms one-third of the height of the tooth.

I attach to it the name of Prof. B. Silliman, the veteran co-laborer in American Science.

6. OTODUS *levis*.—This has very much the form of *Lamna cuspidata*, but the position, form and size of the lateral winglets mark it as a true *Otodus*. It is more slender than any other of this genus, lanciform, equilateral, straight, convex on the inner face, and undulated on the outer from a triangular depression near the base extending longitudinally nearly to the apex. The lateral cones are broad and thick, and detached from the base of the enamel which extends lower on the outer face than on the inner. I have a single specimen from the *Eocene*, S. C.

7. GLYPHIS *subulata*.—The cone is shorter and thicker proportionally than in *G. hastalis*, Agassiz, and is more straight, convex on both surfaces, more so on the inner; the upper third of the outer face is flat, and the point has a tendency outward. A sharp lateral edge extends from the apex equally on both sides two-thirds of the length of the cone, and is uniformly indented. The root is thick, the enamel extends lower on the outer face and to the root on both. In one specimen the root is very broad, and the enamelled base equally so.

I have only two specimens from the *Eocene*, S. C.

I have in preparation full descriptions of all the genera and species of Squalides from the Tertiary of South Carolina, which will be published with figures in a future number of the Journal of the Academy. I have in my collection eight genera and thirty-nine species. I have had the privilege and pleasure of submitting them to the inspection of our distinguished visitor, Prof. Agassiz, who has kindly and liberally given me much information as to their character and arrangement, the result of his extensive experience.

A communication was read from Mr. Moss, dated Sept. 28th, 1847, tendering his resignation as Recording Secretary, in consequence of his removal from the city; which was accepted, and the following resolution unanimously adopted:

Resolved, That the Academy receives with regret the resignation of Mr. Theodore F. Moss, as Recording Secretary, and

tenders him its thanks for the zeal and fidelity with which he has performed the duties of the office during his incumbency.

On motion, also *Resolved*, That at the next meeting for business, the Society proceed to the election of a Recording Secretary.

ELECTION.

M. Carey Lea, Moses H. Emery, Benjamin J. Kern, M. D., and F. W. Sargent, M. D., of Philadelphia, were elected *Members;* and Jacob Sturm, Esq., of Nüremberg, was elected a *Correspondent.*

Stated Meeting, October 5, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Ocypoda Urvillii, from the Pacific Coast. From Dr. Joseph Wilson, U. S. Navy.

Transverse section of a fossil tree, 18 inches diameter, from Athens, Ohio, and numerous specimens, in spirits, of reptiles, from the south-western part of the United States. From Dr. S. P. Hildreth.

Fossil coniferous wood and bark. From Professor Johnson.

A number of American Reptiles. From Dr. George Spackman.

Platycarcinus ———— ? from Tampa Bay, Florida. From Mr. T. A. Conrad.

Apus longicaudatus; from the Rocky Mountains. From Dr. J. L. Le Conte.

DONATIONS TO LIBRARY.

Transactions of the Botanical Society of Edinburgh. Vol. 2, parts 1, 2 and 3. Edinburgh, 1845—46. From Dr. Balfour, of Glasgow, through Dr. Watson.

Memoir on the fossil genus Basilosaurus, with a notice of specimens from the Eocene green sand of South Carolina. By Robert W. Gibbes, M. D., of Columbia, S. C. (From the Journal of the Acad. of Nat. Sci. of Philada., vol. 1, 2d series.) 4to. Philada. 1847. From the author.

A synopsis of the Birds of North America. By J. J. Audubon. 8vo., Edinburgh, 1839. From Dr. Wilson.

Annales des Lagides, ou Chronologie des rois Grecs d'Egypte successeurs d'Alexandre le grand. Par M. Champollion Figeac. 2 vols., 8vo. Paris, 1819. From the author.

Le Sahara Algérien, études géographiques, statistiques, et historiques sur la région au Sud des établissements Français en Algérie, &c. Par M. le Lieut. Col. Daumas. 8vo. Paris, 1845. From Mr. A. Vattemare.

De l'organisation des Bibliothéques dans Paris. Par le Comte de Laborde. 8me., Lettre. Étude sur la construction des Bibliothéques. 8vo. Paris, 1845. From the same.

Movement of the international literary exchanges between France and North America, from Jan. 1845 to May 1846; with instructions for collecting, preparing, and forwarding objects of natural history, written by the Prof. administrators of the Museum of Natural History at Paris; and instructions relative to Anthropology and Zoology. By M. Isidore Geoffroy St. Hilaire. 8vo. Paris, 1846. From the same.

Proceedings of the American Academy of Arts and Sciences, pp. 49—160. From the Academy.

Die Petrefacten der Trias und des Jura sowie der Tertair-und Diluvial Bildungen Württembergs, nach ihren Schichtungsverhältnissen zusammengestellt mit geognostischem Durchschnitt von P. Mohr. 8vo. pamphlet. Stuttgart, 1847. From the author.

Verzeichniss von Mineralien und Gebirgsarten bei Paul Mohr. From the author.

Dr. Wilson deposited the following works:

History of British Animals. By John Fleming, D. D., F. R. S., &c. 2d edition. 8vo. London, 1842.

The Philosophy of Zoology; or a general view of the structure, functions and classifications of animals. By John Fleming, D. D., &c. 2 vols., 8vo. Edinburgh, 1822.

The Naturalist's Library. Vols. 3, 4, 5, 6 and 13, of Ornithology. 12mo.

Untersuchungen über die Fauna Peruana auf einer Reise in Peru Während der Jahre 1838, '39, '40, '41 and '42. Von Dr. J. J. von Tschudi. Leiferungen 1—12. 4to.

A collection of geological facts and practical observations intended to elucidate the formation of the Ashby coal field, in the parish of Ashby-de-la-Zouch, and the neighboring district. By Edward Mammat, F. G. S. 1 vol. 4to. Ashby-de-la-Zouch, 1836.

Antediluvian Phytology, illustrated by a collection of the fossil remains of plants peculiar to the coal formation of Great Britain. By Edmund Tyrrell Artis, F. S. A. F. G. S. 4to. London, 1838.

Handbuch der Naturgeschichte aller Vögel Duetschlands. Von. Christian Ludwig Brehm. 8vo. Ilmenau, 1831.

A Monograph of the British Nudibranchiate Mollusca; with figures of all the species. By Joshua Alder & Albany Hancock. Parts 1, 2, and 3. 4to. London, 1845, '46.

The Viviparous Quadrupeds of North America. By Audubon & Bachman. No. 24, folio.

Proceedings of the Zoological Society of London, pp. 83 to 98.

The Annals and Magazine of Natural History. No. 131. Aug., 1847.

The following letter was read from Dr. J. W. Dawson, of Pictou, N. S., dated Sept. 11, '47, addressed to Prof. Johnson, in answer to some inquiries made by the latter, respecting the gypsum of that section of country.

"The gypsum of Nova Scotia has attracted considerable attention since Mr. Lyell published his reasons for supposing it to be older than had been previously supposed, and you will find much matter relating to your inquiries, in papers by Mr. Lyell, Mr. Brown of Sidney, and myself, published, within the last few years, by the Geological Society of London. I do not, therefore, profess, in this letter, to state much that is new, but merely to give you a general view of the appearances I have observed, and the conclusions deducible from them.

The great workable deposites of gypsum are all contained in the carboniferous system, and most of them in its lower part. The new red sandstone contains only small veins and thin layers of gypsum, of no economical importance. For proof of this, I may refer you to the papers above mentioned, and to that on the new red sandstone, which I hope will be published in the course of this year.

The great masses of gypsum quarried in this Province, are the outcropping edges of true beds, apparently as continuous as those of the limestone associated with them, though perhaps not so much so as the accompanying sandstone and shale. These beds are, however, often of great thickness, and this, together with the tendency of their surfaces to be worn into "pits," their association with soft marls and sandstones easily removed by denudation, and the disturbances to which our carboniferous strata have been subjected, often prevent their arrangement from being distinctly seen. In the following places, however, it is very evident:

At Ogden's Point, near Antigonish, the descending order, seen in the coast section, is as follows:

1. White gypsum, fine grained and rather hard, in thick laminæ, and with minute crystals of carbonate of lime.
2. Reddish gypsum, large grained foliated.

} Aggregate thickness over 100 feet.

3. Alternations of thin beds of gypsum and of grey earthy limestone.
4. Grey limestone, laminated and brecciated, a thick bed.
5. Reddish sandstones and shales.

The dip of these beds is S. S. E. 25°, and the lamination or subordinate bedding of the upper bed of gypsum, coincides with this dip. The beds can be traced inland for several miles; the outcrop of the gypsum running parallel to that of the other beds.

A section somewhat similar to the above, occurs at De Bert river, but there the limestone, which is fossiliferous, does not alternate with the gypsum at their junction; the gypsum is, however, evidently a bed superimposed on the limestone.

Two of the smaller beds near the mouth of the Shubenacadie river, afford good illustrations of the bedding of the gypsum. The first is a bed of black gypsum, on the west side of the river. It is 12 feet thick, and is included in beds of reddish sandstone, a layer of which separates the gypsum into two portions. In this case the contrast between the color of the red sandstone and that of the gypsum, apparently colored by coaly or bituminous matter, is very striking. The other instance occurs on the east side of the river, at the southern extremity of the bay, named the "Bend." It is a bed of whitish anhydrite, with some common gypsum in its upper part, regularly interstratified with reddish sandstones. Near this bed the red sandstones are traversed by a network of very narrow veins of fibrous gypsum.

Near the entrance of Wallace Harbor is a bed of gypsum, whose relations are as follow, in descending order:

1. Reddish clay or shale, not well seen.
2. Grey limestone with fossil shells. Its fissures and the cavities of the shells filled with selenitic gypsum.
3. White granular gypsum; thickness about 12 feet.
4. Reddish clay and shales.
5. Grey sandstone, with calamites and trunks of coniferous trees.

The dip of these beds is S. S. W. 20°.

The above are the best illustrations which, on looking over my notes, I can find of the stratification of gypsum. There is, however, one circumstance worthy of notice, in addition, as it aids in generalizing from such facts. It is the rude lamination or layering observed in many masses of gypsum. This always coincides with the plans of stratification, where the latter can be observed, and is often produced by the presence of thin layers of clay, marl, or limestone. In beds whose associated rocks cannot be seen, this lamination is often observable, and affords an evidence of stratification, which may sometimes be farther confirmed by a comparison with the nearest visible beds of other rocks. In some cases also, this layering affords proofs of disturbances. An instance of this is the enormous bed of gypsum, called White's or the Big Plaster Rock, on the banks of the Shubenacadie. The indications of the singularly contorted laminæ of this bed are confirmed by the vertical position of some associated thin beds of marl and limestone.

Anhydrite very frequently accompanies the common gypsum. In some cases, as at White's quarry, and the bend of the Shubenacadie, it forms the lower parts of beds, which above consist of hydrous gypsum. In other instances, as at the estuary of the Avon and the St. Croix river, it constitutes the mass of great beds, which are, however, in the immediate vicinity of the beds of the common variety. At the East river of Pictou, it occurs in large balls, included in a thick bed of hydrous gypsum. The anhydrite is sometimes also disseminated in grains, through some parts of the beds of gypsum, which are quarried; and this mixed rock, as well as the purer anhydrite, is called *hard plaster* or *shark-stone*, by the quarrymen. Anhydrite has not been observed to be connected with any igneous or metamorphosed rocks. In the only instance which I have observed of the occurrence of gypsum in rocks altered by heat, the gypsum is hydrous.

The gypsum of this province is nearly always crystalline. In the great beds, whether of common gypsum or anhydrite, the structure is always foliated or granular; sometimes large grained, in other cases so fine as to appear compact or chalky. The finer grained varieties often contain groups of larger crystals. In the true veins, occupying fissures in the sandstones, limestones, and gypsum beds themselves, the structure is invariably fibrous. Little rounded kernels of gypsum, sometimes occurring in sandstones, &c., are foliated.

The crystalline structure, and great comparative purity of gypsum, show that it is a chemical, not a mechanical deposit. Its constant association with the limestones of the carboniferous system, containing marine fossils, (Terebratula, Productus, Orthoceras, Corals, &c.) prove that it was deposited in the sea; and

from the present relations of the carboniferous rocks to older systems, in this province, it is probable that the sea basins in which gypsum was deposited, were not very extensive. In these sea basins the deposition of gypsum alternated with mechanical deposits of sand and marl, and with the growth of shells and corals; but the conditions which produced beds of gypsum, were unfavorable both to the transport of sediment and the existence of animals or plants.

From a consideration of these facts, I am disposed to refer the formation of gypsum to springs and rivers, containing free sulphuric acid, and poured into seas in which carbonate of lime had been deposited. The sulphuric acid may have been derived from the volcanic regions of the neighboring ranges of older rocks, and may have been a product of the oxidation of iron pyrites, which still abound in some parts of these older strata, either directly by the action of air and water, or, perhaps, indirectly by the formation of sulphuretted hydrogen, and its oxidation in passing through fissures in contact with water and air. To realize the operation of these causes, you need only imagine streams like the South American *Rio Vinaigre* flowing into a sheltered bay containing beds of shells and corals, or into the space between a coast and its coral reef. I do not, however, pretend to explain the mode of former action of anhydrite in this way, though it, like the common gypsum, has evidently been deposited in beds by water."

A letter was read from Dr. S. P. Hildreth, of Marietta, Ohio, dated Aug. 19, 1847, relative to his donation of this evening.

On motion of Mr. Haldeman, a committee was appointed to confer with Mr. A. Vattemare, on the subject of international exchanges. Committee, Prof. Johnson, Dr. Leidy and Mr. Cassin.

Stated Meeting, October 12, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Forty specimens, in skin, of European birds. From Prof. Bronn, of Heidelberg, in exchange.

Meandrina cerebriformis, attached to Arca Noæ, M. crispa with Serpula and Pyrgonia ; Agaricia ampliata with Pyrgonia, Pocilipora damicornis; Megaphyllum with Nobia. From Dr. Wilson.

A mineral, supposed to be new. From Mr. L. J. Germain.

DONATIONS TO LIBRARY.

Elementary Chemistry, theoretical and practical. By Geo. Fownes, Ph. D., edited, with additions, by Robert Bridges, M. D., 2d edition, 8vo. Philadelphia, 1847. From Dr. Bridges.

Bridgewater Treatises. Treatise 1. On the adaptation of external nature to the moral and intellectual constitution of Man. By the Rev. T. Chalmers, D. D. Treatise 8th. Chemistry, Meteorology, and the function of digestion. By Wm. Prout, M. D., F. R. S. 8vo. Philadelphia, 1836. From the same.

Elements of Physics: or natural philosophy, general and medical, &c. By Neil Arnott, M. D. Edited by Isaac Hays, M. D. 8vo. Philadelphia, 1845. From the same.

Lexicon Scientarium; a dictionary of terms used in the various branches of Anatomy, Botany, Zoology, &c. By Henry McMurtrie, M. D. 12mo. Philadelphia, 1847. From the Author.

Histoire des Polypiers coralligènes flexibles, vulgairement nommés Zoophytes. Par J. F. V. Lamouroux. 8vo. A. Caen, 1846. From Mr. Wm. Gambel.

Henrico Joan. Nepom. Cranz Classis Cruciformium emendata cum fig. aen. in necessarium Instit. Rei Herbariæ Supplementum. 8vo. Lipsiæ, 1769. From Dr. Griffith.

On the influence of atmosphere and locality, &c. on human health, constituting elements of Hygiéne. By Robley Dunglison, M. D. 8vo. Philadelphia, 1835. From the same.

Hector Bossange: Catalogue des livres anciens. 8vo. Paris, 1846. From the same.

The American Mineralogical Journal; conducted by Archibald Bruce, M. D. Vol. 1. 8vo. New York, 1814. From the same.

Seven tracts in the Burmese, Chinese, and Hindustan languages, chiefly on religious subjects. From Dr. Dawson of Philadelphia.

A letter was read from Mr. M. W. Rowe, dated New Harmony, Indiana, Oct. 2, 1847, containing some observations on the generation of the Opossum.

Mr. Conrad read a paper, entitled "Observations on the Eocene formation, and descriptions of 105 new Fossils from the vicinity of Vicksburg, Miss.; with an Appendix." Referred to a Committee consisting of Drs. Wilson and Leidy, and Mr. Phillips.

Stated Meeting, Oct. 19, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Two vertebræ of a Cetacean and three Chelonian bones; from the green sand of New Jersey. Presented by Dr. J. Thomas.

Sulphuret of Antimony and Talc, from Burmah; also several species of Cypræa from the same. From Dr. Dawson.

Sulphate of Baryta, from Antrim, Ireland. Presented by Mr. Wm. L. Mactier.

Dr. Morton deposited the crania of a Swede, Chenouk Indian, Bengalee, Lepan Indian and ancient Phœnician. Also, a cranium of Phoca vitulina, and casts of crania of a Mexican, Burat, Abyssinian and Patagonian.

DONATIONS TO LIBRARY.

Genera Plantarum secundum ordines naturales disposita: Auctor Henrico Endlicher. Fascic. 8–16. 8vo. From Dr. Wm. Darlington.

Versuch über die perspiration einiger mit lungen athmender

wirbelthiere; von C. L. von Erlach. 4to. Bern, 1846. From Dr. Morton.

Dissertatio medica inauguralis continens observationes quasdam anatomicas comparatas de Squatina lævi. Auctore Henrico Boursse Wils. Lugduni Batavorum, 1844. From the same.

Esquisse des principaux points de vue sous lesquels ou peut considerer l'anatomie de l'Homme et des animaux dans sons état actuel. Par M. Duvernoy. Paris, 1840. From the same.

Quelques observationes sur l'animal de la Spirule, et sur l'usage du siphon des coquilles polythalames. Par M. H. Blainville. Paris, 1838. From the same.

Fragment d'anatomie comparée sur les organes de la géneration de l'Ornithorynque et de l'Echidné; par G. L. Duvernoy. 4to. From the same.

Öfversigt of slägtet Erinaceus af Carl J. Sundevall. From the same.

Faculté de Médecine de Paris. Thése pour le Doctorat en Medecine, présentée et soutenue le 22 Août, 1845. Par Louis-Pierre Gratiolet. 4to. Paris, 1845. From the same.

Über den bau und die Lebensercheinungen des Branchiostoma lubricum, Costa, Amphioxus lanceolatus, Yarrell. Von J. Müller. Folio. Berlin, 1844. From the same.

Natural History of New York. Agriculture of New York. By Ebenezer Emmons M. D. Vol. 1. 4to. Albany, 1846. Purchased by order of the Academy.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 3, No. 12. From the Association.

An Address delivered before the Chester county Horticultural Society at West Chester, Pa., September 10, 1847: by Wm. H. Dillingham; with the Transactions of the Society for 1846, '47. Philadelphia, 1847. From the Author.

A letter was read from Prof. Haldeman, dated Columbia, Oct. 16, 1847, calling the attention to a collection of Birds and Reptilia for sale at Tampico, Referred to the Curators.

Mr. Gambel exhibited an albino specimen of the Wood Pewit, (*Muscicapa virens*) which was obtained in Liberty county, Georgia, by Mr. Wm. L. Jones, of that State, and also a specimen of a Woodpecker resembling *Picus pubescens*, but probably a new species. This last is remarkable in having only three toes, and would therefore more probably belong to the genus *Picoides* Lacep. (*Apternus*, Swains.) The feet are slender and delicate, without even a rudiment of a fourth toe; in other respects it more closely resembles the *P. meridionalis*, Swains. (*P. Gairdnerii*, Aud.) which is also an inhabitant of Georgia. It differs in having the bill more compressed at the base, the tips of the tertiaries without emarginations, the primaries narrower and more pointed, and in the toes being only three in number.

Meeting for Business, Oct. 26, 1847.

Mr. Pearsall in the Chair.

The committee to whom was referred Dr. Hallowell's paper, describing a new *Coluber*, reported in favor of publication in the Proceedings.

Description of a New Species of Coluber inhabiting the United States.

By Edward Hallowell, M. D.

Coluber venustus.

Characters.—Head sm[all] [neck] slender, color reddish-brown, with a dorsal ash-colored band extend[ing] [from] the occiput to near the extremity of the tail; four narrow bands of red[dish] brown color from the neck to the commencement of the tail, with two in[ter]mediate bands of the same color, but less distinct; an ash-colored, band r[esem]bling that upon the dorsum, along each side of the abdomen; abdomen [of a] brick-red or copper color; tail short.

Description.—Head sm[all] elongated, flattened above, covered with nine

plates; of these the vertical is pentagonal; the occipital are also pentagonal, their anterior margins being in contact with the vertical, supra-orbitar, and superior post-occular plates; the supra-orbitar are pentangular, and in contact posteriorly with the occipital and posterior superior post-oculars, internally with the vertical, and anteriorly with the posterior frontal; their external margin forms the upper part of the orbit, and is in contact in front with the superior ante-ocular; they do not project beyond the eye; the posterior frontal are quadrilateral; the anterior frontal are smaller than those last described; their external and posterior angle is somewhat prolonged, passing in between the frenal and the posterior frontal plate; their anterior margin is rounded; there are two ante-ocular, and two post-oculars, of the posterior the superior is the larger; the frenal plate is quadrilateral; the nasal is single; the nostril, which is small, is placed near the posterior margin; the rostral plate is hexagonal, incurvated below; it is in contact with the anterior frontal, the nasal and the anterior labials; in the specimen examined there are six superior labials on one side and seven upon the opposite side of the head, exclusive of the rostral; of these the fifth is the largest; it is oblong quadrilateral; eyes of moderate size, placed upon the side of the head; neck slender, body rounded, contracted near the anus, thickest near the middle, covered with carinated scales; of these there are fifteen rows; these scales are bi-punctate posteriorly; the intervening epidermis is black; tail short and tapering to a point.

Colour.—Head brown above; irides ——. An ash-coloured band extends along the dorsum, beginning at the occiput; it is narrow upon the neck, and broadest near the middle of the animal, where it measures one line and a quarter in breadth; it becomes narrow upon the tail, and is finally lost towards its extremity; two longitudinal bands of a reddish-brown colour extend along each side from the neck to the tail, the superior along the external margin of the ash-coloured dorsal band, the inferior along the lateral margin of the abdominal scuta; there is an intermediate band of the same colour, but less distinct; the spaces intervening between the bands are light brown; the chin is white, presenting numerous small conglomerate spots of a black colour upon its surface; the throat is also white, with blackish points, most numerous upon its sides; the neck, abdomen and under part of tail are of a brick-red colour; lighter upon the neck; an ash-coloured band, resembling that upon the back, extends along each side of the neck, and of the abdomen as far as the tail.

Dimensions.—Length of head 4 lines; greatest breadth 2½ lines; length of body 9 inches, (Fr.) of tail, 2 inches 5 lines.

Abdomen.—Scuta 122. Subcaud. 41.

Habitat.—Michigan, near Copper Harbour, Lake Superior. This species was found by Mr. Theodore F. Moss, between stones upon the border of the lake, and presented by him to the Acadamy of Natural Sciences. The specimen had been preserved in alcohol two weeks.

No animal resembling the one I have described is figured in Prof. Holbrook's work on the "Reptiles inhabiting the United States," and I have therefore ventured to consider it as new.

Since the figure of this animal was printed, I have received, through the

kindness of Dr. Storer, the original of the *occipito-maculatus*,* which corresponds with the animal described in many particulars. The form of the head and neck is the same, as are also the plates immediately in front of the eye, which are two in number, the *Tripidonatus Dekayi*, with which it has been considered identical, presenting but one. The scales are likewise carinated and bi-punctate posteriorly, and the number of caudal and abdominal plates is nearly the same in both. The specimen of Dr. Storer, however, is much more slender, and the coloration is almost totally different, which, however, may be the effect of long immersion in spirits. We are inclined to the opinion, therefore, that notwithstanding the great difference in their size and coloration, the two animals are the same.

My friend Prof. Baird, to whom I exhibited the specimen brought by Mr. Moss, states that it is very abundant in the north, being, in fact, the most common snake along Lake Champlain. In Troy, he observes, "I have found one, and have a specimen from Georgia, at least given me as from that locality." It is certainly remarkable, that an animal having so wide a geographical distribution, and presenting the beautiful appearance which it does, should be so little known to naturalists.

The Committee on Mr. Conrad's paper, read 12th inst., reported in favour of publication in the Proceedings.

Observations on the Eocene formation, and descriptions of one hundred and five new fossils of that period, from the vicinity of Vicksburg, Mississippi, with an Appendix.

By T. A. Conrad.

In the Spring of 1844, I collected about 109 species of Eocene fossils, most of which appear to be new species. There are 60 univalves, 42 bivalves, and 1 multivalve shell, and 6 or 7 polyps.

Of these fossils, I can identify two only with species of the Claiborne sands, *Infundibulum trochiformis* and *Conus saurodens*. Very few others are related to species of the Alabama sand strata; *Lucina Mississippiensis*, *Sigaretus Mississippiensis* and *Dentalium Mississippiensis*, are the only shells which might be confounded with species of those deposits.

The Vicksburg group contains three species of bivalves which have much resemblance to Miocene fossils of this country. *Lima staminea* approaches *L. papyria*; *Corbula engonata* is allied to *C. inequalis*, Say; and *Nucula Vicksburgensis*, to *N. obliqua*, Say.

I have not observed a recent species in this group, and yet it is decidedly more modern than that of the Claiborne sands; and as both deposits have but two species in common, I thought it advisable to designate the former, Upper or Newer Eocene, and the latter Lower or Older Eocene, as the two divisions are more distinct than the Older and Newer Pliocenes.

In the American Journal of Science and Arts, I have given a sketch of the

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* Reports on the Icthyology and Herpetology of Massachusetts, by D. Humphreys Storer, M. D., p. 230.

Mississippi Eocene, and observed that not* more than 10 species would be found, on comparison, identical with Claiborne shells. I had reference to the sand at Claiborne, and not including the limestone above it. A careful comparison has reduced the number to two species, for the *Dentalium*, which when at Vicksburg (without a Claiborne specimen for comparison) I had supposed to be *D. thalloides*, is a distinct, though closely allied species.

This newer portion of the Eocene in Mississippi is represented in Alabama by the white limestone at St. Stephens on the Tombeckbe river, and the similar rock which constitutes the uppermost stratum at Claiborne, on the Alabama river; all being admirably connected by the abundance of *Nummulites Mantelli*. There is a similar limestone in Charleston County, South Carolina, in which I found *Scutella Lyelli* and *Pecten calvatus*, fossils of the Claiborne limestone, and both rocks are probably of the same geological age. The limestone of Tampa Bay, Florida, is included in the Upper Eocene series, but as yet no fossil has been obtained from it identical with a species of the Carolinas, Mississippi or Alabama, unless it is a specimen of *Carcharias megalodon*, which Capt. Powell, of the Navy, found on the bay shore.

The only species of *Crassatella* which occurs at Vicksburg, is more nearly related to *C. tumida* of the Paris basin than to *C. alta* of Claiborne.

Ostrea sellæformis characterises the lower division of the Eocene formation. It occurs abundantly beneath the fossiliferous sands of Claiborne; at Vance's Ferry, South Carolina: and on the right bank of James river, below City Point, Virginia. I also refer to this section, the localities at Fort Washington, Piscataway, and Upper Marlborough, Maryland. Other characteristic fossils are *Cardita planicosta* and *Turritella Mortoni*, the former occurring at Piscataway; at Claiborne, Alabama; and also at Marlbourne, on Pamunkey river, Virginia, the residence of Edmund Ruffin, Esq.

The following table illustrates the two editions of the Eocene:

DIVISIONS.	LOCALITIES.	CHARACTERISTIC FOSSILS.
Upper or Newer Eocene.	Vicksburg, Miss., white limestone of St. Stephens, and of Claiborne, Alabama, and part of that in Charleston Co., South Carolina.	Scutella Lyelli. S——— Rogersi. Pecten Poulsoni. Nummulites Mantelli.
	limestone in the vicinity of Tampa Bay, Florida.	Nummulites Floridana. Cristellaria rotella. Ostrea Georgiana.
Lower or Older Eocene.	Fossilliferous sands of Claiborne, and St. Stephens, Al. of the Washita river, near Monroe, La.; Pamunkey river at Marlbourne, and Eocene green sand, on James river, below City Point, Va.; Fort Washington, Piscataway, and Upper Marlborough, Md.	Cardita planicosta. ——— Blandinga. Crassatella alta. Ostrea sellæformis. Turritella Mortoni, &c.

*In the paragraph alluded to, this word was accidentally omitted. I did not, when it was written suppose that 10 fossils would be found to correspond with the species of the Claiborne sands.

The upper limestone of Shell Bluff on the Savannah river in Georgia, which contains *Ostrea Georgiana* and *Scutella quinquefaria*, overlies the strata which contain species of organic remains identical with those of the Lower Eocene of Alabama and Virginia, none of which has yet been found associated with the two characteristic fossils above named. On the other hand, the Ostrea Georgiana occurs at Jackson, Mississippi, where its position is said to be below the Vicksburg group. It is therefore the line of demarcation between the Upper and Lower Eocene.

FOSSILS OF THE NEWER EOCENE OF MISSISSIPPI.

Dentalium Mississippiensis.

Curved, attenuated above, longitudinally striated, the lines alternated in size. Length 2 1-10. Abundant. It differs from *D. thalloides*, nob., in having more numerous and much less prominent lines. It is very abundant.

There is another species which occurs in fragments. It is small, rare, and is smooth, polished and curved.

Fissurella Mississippiensis.

Suboval, rather elevated, with numerous unequal radiating lines, and fine transverse lines, giving a minutely granulated appearance to the shell; foramen oval, submedial. Length ½, very rare.

An echinated species occurs apparently identical with *F. trochiformis* of Paris, and of Claiborne, Alabama.

Solarium triliratum.

Discoidal, with three thick approximate ridges on the periphery; suture channelled; volutions with oblique impressed lines, and 2 fine revolving lines on each whorl; base convex with three revolving impressed lines that near the umbilicus profound, and with coarse rugose transverse lines. Diameter 7-10. Not common.

Bulla crassiplica.

Cylindrical, narrowing towards the base, smooth and entire; fold at base thick and prominent. Length 2-10.

Abundant on Dr. Smith's plantation, 6 miles N. E. of Vicksburg.

1. *Cypræa sphæroides.*

Short ovate, subglobose; posterior end narrow; base rounded; aperture narrow, the margins with numerous teeth. Length 1¼.

Very rare. Mr. J. D. Anderson, of Vicksburg, found one, and I obtained only one during the two weeks employed in collecting the fossils around Vicksburg.

2. *Cypræa lintea.*

Ovate, elevated, ventricose, with four approximate equal impressed lines: base ventricose, profoundly striated; labrum margin much thickened, profoundly striated; summit of the labrum prominent; base slightly produced. Length 6-10. Rare.

Narica Mississippiensis.

Subglobose, revolving lines fine, regular, equal; longitudinal wrinkles very

minute, spire very short; suture somewhat channelled; umbilicus rather large. Length 4-10.

Sigaretus Mississippiensis.

Obliquely oval, with fine very closely arranged wrinkled revolving lines; whorls convex; no umbilicus. Length 8-10.

This species is usually much smaller than the specimen described, and scarcely differs from a species of Claiborne, Alabama. Not very common.

1. *Natica Mississippiensis.*

Subglobose, body whorl flattened above: suture channelled; spire little prominent; base profoundly callous; aperture moderate. Length 8-10.

This rare species I found about 7 or 8 miles N. W. of Vicksburg.

2. *Natica Vicksburgensis.*

Subglobose, whorls 4 or 5, convex; umbilicus large; columella straight; labium callous. Length 6-10.

This species is common.

Scalaria trigintanaria.

Turreted, whorls convex, cancellated with numerous prominent lines, the longitudinal one lamellæform and elevated towards the suture, about 32 in number on the body whorl, which is obtusely carinated; revolving lines equally prominent with the longitudinal, but thicker; base below the carina with minute revolving lines. Length 9-10. Very rare.

Turritella Mississippiensis.

Subulate, volutions flattened, with seven revolving lines on the larger ones, the penultimate line large and prominent; longitudinal wrinkles fine, approximate, much curved, crenulating the revolving lines: the whorls near the apex generally with two prominent distant revolving lines, and a less prominent one margins the suture. Length 3 inches. Not abundant.

1. *Terebra divisurum.*

Subulate, with nineteen flattened volutions, obscurely turreted; polished and with longitudinal curved ribs, dislocated by an impressed line above the middle of each whorl; ribs obsolete on the body whorl below the impressed line. Length 2 inches. Common.

The ribs are sometimes obsolete on the larger whorls, or replaced by coarse wrinkles, which are generally distinct on the body whorl.

2. *Terebra tantula.*

Subulate, with longitudinal ribs dislocated by an impressed line; whorls with minute revolving lines.

Very similar to the preceding, but narrower, far less in size, and distinguished by the revolving lines and by the ribs on the body whorl, which extend to the beak. Length $\frac{2}{3}$. Rare.

1. *Pleurotoma porcellana.*

Fusiform, smooth and polished; whorls 11, convex, with two revolving lines near the upper margin; the interstices transversely striated; body whorl with

revolving impressed lines, commencing near the upper angle of the aperture; volution contiguous to the apex, papillated; labium striated; aperture rather more than half the length of the shell; beak perfectly straight. Length $1\frac{1}{4}$. Rare.

This shell may perhaps appertain to *Brachytoma*, Swainson.

2. *Pleurotoma Mississippiensis.*

Turreted; volutions eight, concave above and plain below, with longitudinal distant rounded ribs; body whorl with revolving lines, commencing in a line with the summit of the aperture; beak short, a little curved. Length $\frac{2}{3}$.

3. *Pleurotoma servata.*

Fusiform; whorls ten, with rounded longitudinal ribs and prominent strong revolving lines, a fine intermediate line on the body whorl; volutions concave above, with a carinated revolving line below the suture; beak narrow, elongated, slightly bent, acuminate; aperture and canal rather more than half the length of the shell. Length 9-10.

4. *Pleurotoma congesta.*

Short-fusiform, volutions nine or ten, with revolving raised lines and longitudinal wrinkles; spire conical-acute; whorls slightly contracted in the middle, with longitudinal curved irregular striæ, interrupted in the middle of each whorl; aperture half as long as the shell; beaks slightly twisted. Length 1-10th. Very abundant.

It approaches the genus *Brachytoma*, Swainson.

5. *Pleurotoma cristata.*

Fusiform, whorls ten, angulated in the middle, except the two from the apex, and with a reflected finely dentate carina; revolving lines distinct, finely crenulated; spire scalariform; from the upper end of the aperture runs a prominent revolving line, much larger than the others: lines on the body whorl below the angle minutely granulated; beak narrow, produced. Length $\frac{3}{4}$. Rare.

6. *Pleurotoma tantula.*

Slender; volutions nine, convex, with longitudinal rounded, slightly curved ribs; spire elevated and acute; suture margined by an indistinct raised line; beak short, narrow. Length 4-10. Rare.

A member of subgenus *Clavatula*, Lam.

7. *Pleurotoma tenella.*

Fusiform; volutions nine, whorls slightly contracted above, with longitudinal prominent curved lines, and a prominent revolving line near and below the suture; between this and the suture an impressed line; body whorl with strong prominent revolving lines, commencing in a line with the upper end of the aperture, and sometimes alternated in size; ribs frequently obsolete on the body whorl, and terminating at the striated space; beak narrow, somewhat produced. Length 8-10.

It probably belongs to Swainson's genus *Clavicantha*.

8. *Pleurotoma cochlearis.*

Subfusiform, with elevated revolving lines, alternated with fine lines, the in-

terstices with fine longitudinal wrinkled lines; spire elevated, acute; beak narrow, straight. Length $1\frac{2}{3}$. Very rare.

The specimen figured is more than twice the size of any other specimen found, though it is an abundant species.

9. *Pleurotoma eborides.*

Turreted; whorls nine, smooth, flattened above, obscurely nodulous or subcostate below; beak short. Length 6-10.

10. *Pleurotoma abundans.*

Turreted: whorls ten, concave above, with a crenulated prominent revolving line just below the suture; convex portion of the whorls with prominent, acute, nearly straight ribs and regular revolving lines; concave portion with minute revolving lines; beak narrow, slightly produced. Length $\frac{3}{4}$.

It belongs to subgenus *Clavatula*, Lam.

11. *Pleurotoma rotædens.*

Narrow-subfusiform, small, with a profound deeply crenulated carina on the body whorl and in the middle of each whorl of the spire; suture margined with a prominent line below and a minute one above; large volution with distinct revolving lines and minute longitudinal wrinkles; beak slightly produced, narrow, straight. Length $\frac{1}{2}$. Rare.

12. *Pleurotoma decliva.*

Fusiform, with subangular volutions, with strong prominent revolving lines on the body whorl, alternated in size; the whorl flattened and oblique above the angle, with four unequal revolving lines; lower whorls of the spire with three prominent revolving lines on the lower half, and a fine intermediate line; upper half with three minute revolving lines, and a larger prominent one below and near the suture; aperture and canal half the length of the shell. Length 1.

Allied to *P. servata*, but wants the longitudinal ribs of that species. Rare.

Phorus humilis.

Depressed; volutions five, with comparatively large shells and fragments adhering: body whorl very wide, much depressed; base flat; near the periphery concave. Width 8-10. Height $\frac{1}{4}$.

I found but one specimen of its shell, which seems to be less elevated than the other species.

Buccinum Mississippiensis.

Turreted; whorls eight, three from the apex smooth and entire; the others with longitudinal regular distant ribs and intermediate wrinkles; revolving lines raised, alternated in size: labrum with eleven raised lines within, not extending to the margin; columella striated. Length 5-10. Common.

Typhis curvirostratus.

Subfusiform; volutions 8, scalariform, varices or ribs profound; tubes long; that near the margin of aperture thick, elongated, beak elongated, spiniform, much curved. Length 1-10. Not uncommon.

Murex Mississippiensis.

Subfusiform, with three elevated varices, and an intermediate prominent obtuse longitudinal ridge; between two of the varices on the body whorl is a smaller ridge; revolving lines prominent, alternated in size, profound on the varices; longitudinal wrinkles distinct; labium with six prominent lines within, the margin regularly foliated; canal long. Length, 1 7-10.

North American, uncommon. It belongs to the subgenus Phyllonota of Swainson.

Melongena crassi-cornuta.

Fusiform: whorls concave above, and having a series of thick prominent nodes on the angle of the whorls; on the body whorl they are very large and thick, becoming spines towards the mouth, that nearest the margin a very thick, long, recurved spine; towards the base is a series of thick short spines, revolving lines coarse, unequal, not very prominent, waved: longitudinal wrinkles coarse and distinct. Length of fragment 3.

I found but one specimen of this fine shell, and cut off the base in digging it out of the clay.

The genus Melongena has no affinity with the type of Pyrula of Lamarck (Fulgur of Montford.) Its true position will probably be among the Purpurinæ. I have referred to this genus the *Fusus corona* of Lamarck. The species have a remarkable sinus at the upper end of the labrum.

1. *Fusus spiniger.*

Fusiform, with revolving lines, and a series of elevated acute spines on the angle of the large whorl; the series continued on the whorls of the spire near the suture; two upper whorls entire; sides above the tubercles flattened, with the revolving lines fine and indistinct; volutions seven: beak produced; labrum striated within. Length $1\frac{3}{4}$. Very rare.

It belongs to the genus *Hemifusus* of Swainson.

2. *Fusus Mississippiensis.*

Narrow-fusiform; volutions eight or nine, convex, with distant profound, rounded ribs, and fine regular ornamental wrinkles; canal much longer than the aperture; labrum striated within: beak narrow, produced, slightly bent. Length $1\frac{3}{4}$.

3. *Fusus Vicksburgensis.*

Fusiform; whorls convex, with revolving raised lines alternated in size, and fine longitudinal wrinkled lines; large whorl ventricose; beak somewhat bent. Length $1\frac{1}{4}$.

Ficus Mississippiensis.

Pyriform, thin and fragile, latticed, with acute prominent lines, the revolving one largest and distant, the interstices with minute revolving lines; longitudinal lines closely arranged, equal; spire very short, whorls convex, the two nearest the apex entire; large volution flattened at top. Length $1\frac{1}{4}$.

Chenopus liratus.

Ovate, with a thick dilated labrum; whorls nine, convex, ribbed longitudinally, and with revolving lines; ribs curved, undulated on the body whorl and subnodose above; body whorl gibbous; aperture narrow; callus of the labium profound. Length $\frac{3}{4}$. Very rare.

I have adopted the above generic name because, as Phillipi observes, the *Pterocera lambis* was made the type of the genus APOORHAIS.

Ringicula Mississippiensis.

Ovate acute, whorls five or six, convex, with minute revolving lines; suture profound, margin carinated by a submarginal impressed line; columella two-plaited. Length 1-10. Abundant on Dr. Smith's plantation near Vicksburg.

Actæon Andersoni.

Oblong subovate; whorls six, with regular impressed revolving lines, interstices minutely striato-punctate; spire acutely conical, whorls convex; lines on the shoulder indistinct; aperture about equal to half the length of the shell. Length 4-10.

An elegantly formed and very rare species, dedicated to James D. Anderson, Esq., of Vicksburg, who first collected the fosssils of that locality and studied the species.

1. *Cancellaria Mississippiensis.*

Subovate; whorls five or six, turreted; ribs prominent, ten or eleven on the large volution, one or two considerably larger than the others; revolving lines raised, distinct, alternated in size on the lower half of the body whorl; labrum striated within; columella concave, three-plaited. Length $\frac{1}{2}$.

2. *Cancellaria funerata.*

Oblong ovate with large longitudinal ribs and prominent revolving lines; spire rather elevated, turreted, whorls six, convex; two from the apex entire; ribs on the body whorl profound, unequal; labrum with nine prominent lines within, not extending to the margin; columella three-plaited. Length $\frac{1}{2}$. Very rare.

1. *Triton crassidens.*

Subfusiform, a little distorted; spire acuminated; whorls latticed, the longitudinal ridges rather distant, prominent; body whorl with the longitudinal ribs distant, and on the angle some of them very prominent or subtuberculous; labrum with one large thick prominent tubercle, and with transverse plaits and grains: columella profoundly excavated; canal short. Length 1 6-10.

I have given the name of *crassidens* to this species to distinguish it from *T. cancellinus*, the large tooth on the labrum being very thick and prominent. The large plait on the upper part of the labium in much smaller than the corresponding one in *cancellinus*. It differs in other particulars though the two species are nearly allied.

2. *Triton abbreviatus.*

Short-subovate: whorls six, longitudinally ribbed, and with strong alternated revolving lines; whorls of the spire slightly convex, the two nearest the apex entire, rounded; body whorl inflated, and having one large varix; the ribs about fifteen in number; submargin of labrum denticulate; canal short, oblique, straight, aperture and canal about half the length of the shell. Length 4-10.

3. *Triton Mississippiensis.*

Acutely subovate; volutions six or seven, latticed, the longitudinal and revolving lines subequal; one varix on the large volution opposite to that on the submargin of the labrum, both elevated and narrow or subcompressed: two varices narrow and prominent on three whorls of the spire; submargin of labrum with six teeth; columella with five transverse plaits, and two or three near the upper angle of aperture. Length $\frac{1}{2}$ nearly.

Of this species I obtained one specimen only.

Cassidaria lintea.

Elliptical, with fine closely-arranged revolving lines, crossed by finer longitudinal lines, most distinct towards the margin of the labrum; spire prominent, acute, cancellated; penultimate whorl slightly tuberculated at base; angle of large whorl with unequal small tubercles, wanting towards the labium margin; labium striated above, and with rugose plaits below; submargin of labium striated within, margin entire. Length $1\frac{1}{4}$.

1. *Cassis cælatura.*

Short-elliptical, with revolving lines and serious of nodes and granules; tubercles profound on the angle of the body whorl; spire prominent, whorls cancellated; the upper half with a profound revolving line; labium granulated and striated throughout, the upper grains indistinct; labrum with transverse prominent lines. Length $1\frac{1}{2}$.

2. *Cassis Mississippiensis.*

Subovate; whorls sightly concave above, the angle nodular; body whorl indistinctly ribbed or waved; revolving lines distinct but fine; body whorl with one sharp compressed varix or carina; apex papillated; pillar with transverse rugose plaits throughout; submargin of labrum regularly and profoundly dentate. Length 9-10. Very rare.

Oniscia harpula.

Obovate, latticed: longitudinal ribs angular, distant, about ten on the large whorl, with a slightly foliated and waved margin; revolving lines large, distant, about twelve on the body whorl; spire scalariform, the ribs divided by an impressed line; submargin of labrum obtusely dentate. Length 1 2-10. Very rare.

Fulgoraria Mississippiensis.

Elliptical, volutions nine, fluted, the ridges distant, acute, and generally one or two of them large, thick and very remote from each other, on the body whorl; spire conical, acute; aperture auriform; columella with nearly equal plaits, not oblique; labium thick, with a sharp margin. Length $1\frac{1}{2}$. Common.

Oliva Mississippiensis.

Subelliptical; volutions six and a half; on the middle of the body whorl is a slightly impressed revolving line. Length 1 1-10. Usual size $\frac{3}{4}$. Abundant.

1. *Mitra conquisita.*

Fusiform, slender, smooth and polished; whorls eleven, slightly convex; penultimate whorl entire, except at the summit, where there are two impressed lines forming a raised line between them; the other whorls of the spire with revolving lines, and towards the apex the intervening spaces transversely wrinkled; apex acute; body whorl above the aperture, except the lines near the suture, without striæ; inferiorly striated; aperture narrow; labium 3-plaited. Length 1 4-10. Very rare.

2. *Mitra Mississippiensis.*

Narrow-fusiform, with eight whorls, flattened at the sides and slightly scalariform; whole surface with revolving unequal lines and longitudinal fine wrinkles, obsolete on the lines but distinct on the intervening spaces; aperture more than half the length of the shell; columella 3-plaited. Length $1\frac{3}{4}$. Rare.

In the young shell the striæ are prominent over the whole surface, but in adult specimens they become slightly impressed lines on the ventricose portion of the body.

3. *Mitra cellulifera.*

Elevated-subfusiform; slender; whorls slightly turreted; longitudinally ribbed; interstices with transverse impressed lines, resembling punctæ or cells; beak produced; labium 4-plaited, the second one from the top divided by a slightly impressed line. Length $\frac{3}{4}$. Rare.

4. *Mitra staminea.*

Elliptical, whorls eight, slightly turreted, longitudinally ribbed; ribs small, numerous; whorls with distinct impressed revolving lines; body whorl ventricose; aperture about half the length of the shell; pillar 4-plaited, the three upper ones nearly equal. Length 4-10.

5. *Mitra Vicksburgensis.*

Elliptical, small; whorls slightly convex, with fine longitudinal ribs, obsolete towards the suture inferiorly and wanting on the lower half of the body; suture profound; aperture more than half the length of the shell; pillar 4-plaited, the three upper ones nearly or quite equal in size.

Distinguished from the preceding by wanting the revolving lines, and in being wider in proportion to its length. 3-10.

Caricella demissa.

Subfusiform; whorls six, convex, one or two whorls near the apex distinctly striated longitudinally, and with minute revolving lines; upper part of the whorls slightly concave; apex papillated, first and second volutions smooth, entire; beak striated; aperture about two-thirds the length of the shell; columella 4-plaited. Length $1\frac{2}{3}$.

Scobinella.

Shell subfusiform, with a deep angular sinus in the labrum as in *Pleuro-*

toma; spire long, turreted; pillar lip wanting; columella with plaits decreasing in size downwards, as in *Mitra;* canal short.

Scobinella cælata.

Subfusiform; volutions eleven, slightly scalariform, with longitudinal irregular ribs and revolving impressed lines; ribs interrupted on the spire by a tuberculated convex space; suture margined by a row of fine tubercles or grains; labium with four, rarely five plates. Length 1 3-10.

This singular shell is perhaps more nearly related to *Pleurotoma* than to *Mitra*. The plates in most specimens resemble those of the latter genus, but in one instance where there are five plaits, the middle is the largest and thickest, the lowest one being minute.

1. *Turbinella Wilsoni.*

Fusiform; spire elevated, acute, volutions ten, angular, nodose, the larger volutions somewhat concave above; the upper volutions with revolving lines, obsolete or wanting on the lower ones; beak with coarse, slightly raised revolving lines; aperture narrow; columella with three rather distant compressed plaits, the middle one largest; canal long. Length 5 inches.

The young of this species has distinct lines on every part of the shell, except on the large portion of the body whorl, where they are indistinct and remote. This species is named to commemorate the scientific zeal of Dr. Thomas B. Wilson. It is rare, and generally very imperfect.

2. *Turbinella protracta.*

Fusiform, with about nine volutions, with thick, prominent, longitudinal ridges, and revolving, thick, prominent lines, with a fine intervening line; longitudinal wrinkles distinct; whorls concave above; spire elevated, acute; columella with four plaits, the lower one dentiform; canal long; labrum striated within. Length 1 5-10.

3. *Turbinella percxilis.*

Narrow-fusiform, with convex volutions, having large, rounded, longitudinal ribs, about six on the large whorl; revolving lines strong, prominent, distant, with a fine intermediate line; longitudinal wrinkles minute and ornamental; aperture narrow; labrum striated within: columella with two large plaits; beak long and narrow. Length 1.

Distinguished from the preceding by its narrower outline, fewer and larger plaits on the pillar, &c. It is probably a much smaller species, but as I have one specimen only, its greatest size cannot be determined.

Panopæa oblongata.

Elongated, very inequilateral, ventricose; extremities rounded: umbo prominent, undulated; valves slightly contracted at base in a line with the umbones: valves gaping at both ends. Length 3½.

Occurs in its original vertical position generally with connected valves, but it is extremely friable and difficult to obtain.

1. *Mactra Mississippiensis.*

Subtriangular, equilateral, very thin and fragile, plano-convex, dorsal margin

very oblique, nearly straight, extremity acutely rounded, much above the line of the base, which is regularly curved; summit prominent; lunule elongated, defined by an impressed line; umbonial slope nearly terminal, angulated and carinated by a thin line. Length 1 8-10. Height 1 4-10.

Proportionally more elevated than M. *prætenuis*, of Claiborne, Alabama, and a much larger species. Rare.

2. *Mactra funerata*.

Triangular, small, convex; much longer than high, equilateral; posterior end angular. Length 3-10. Rare.

Amphidesma Mississippiensis.

Oblong-oval, somewhat compressed, inequilateral, smooth, with a few distant concentric impressed lines; posterior side with a slight fold, end obtusely rounded; anterior end rounded; cartilage pit very narrow, elliptical; lateral teeth in the right valve distinct, in the left wanting? Length 1 1-10. Height 7-10.

1. *Psammobia papyria*.

Oblong-oval, or somewhat rhomboidal; very thin, compressed; posterior side rather wider than anterior; and posterior to the umbonial slope, which is undefined, there are concentric lamellæform lines; anterior margin obliquely rounded; dorsal margin parallel with the base. Length $1\frac{1}{2}$. Rare.

2. *Psammobia lintea*.

Oblong, compressed, with rather fine, very regular concentric lines closely arranged; anterior margin acutely rounded, the extremity in a line above the middle of the valve; posterior side shortest; hinge line rectilinear, oblique: posterior side with acute lines larger and more prominent than those of the middle and anterior side; umbonial slope subangular. Length $1\frac{1}{4}$. Rare.

Crassatella Mississippiensis.

Ovate-trigonal, inequilateral, thick and ponderous; surface coarsely striated, summits flattened, sulcated; umbo plano-convex, with numerous sulci, obsolete behind the umbonial slope, which is angulated and subcarinated above; posterior extremity truncated, direct; basal margin slightly contracted anterior to the umbonial slope; inner margin crenulated. Length 3. Common.

This species is variable in outline, and allied to *C. tumida* of the Paris basin.

1. *Cardium eversum*.

Ovate, elevated, subequilateral; ventricose, thin, with numerous approximate, slender, rounded ribs distinctly crenulated anteriorly towards the margins; umbonial slope subangulated; posterior extremity subtruncated, direct; summit very prominent; ribs crenulated on the sides, in the middle of the valves, or finely aculeated. Height 1 2·10. Length not quite as much. Rare.

2. *Cardium glebosum*.

Ovate, ventricose, with numerous flat ribs, slightly carinated on the margins and numerous approximate, prominent arched scales. Height $1\frac{1}{4}$.

Rare, and obtained only in fragments.

3. *Cardium diversum.*

Trigonal, ventricose, subequilateral, thin, with concentric lines and more approximate, fine, but obtuse radiating lines; umbonial slope rounded, and the posterior space from the umbonial slope with profound radiating striæ; posterior side slightly waved or contracted; summits very prominent; basal margin rounded in the middle, contracted posteriorly: posterior extremity subtruncated; inner margin densely crenate. Height 1 2-10. Length 1 3-10. Abundant.

Allied to *C. Nicolleti*,nob. When viewed through a magnifier, the interstices of the concentric lines have a singular imbricated appearance.

4. *Cardium Vicksburgense.*

Cordate, ventricose, with about twenty-four ribs; angular and profound; towards the anterior margin obsolete; summit prominent; nearest the anterior end; anterior margin nearly straight and direct; posterior end subtruncated. Height 3-10. Length 4-10 nearly. Rare.

1. *Tellina pectorosa.*

Subtriangular, elevated, smooth and polished; ventricose; beaks medial; anterior end obtuse, rounded; posterior side somewhat cuneiform, with a slight wave or fold; basal margin profoundly rounded. Length 6-10. Height 5-10.

2. *Tellina serica.*

Elliptical, inequivalved; beaks nearest the posterior end; concentric lines very minute and closely arranged; anterior side slightly bent or reflected. Length 7-10.

3. *Tellina Vicksburgensis.*

Triangular, small, with regular minute concentric lines; anterior end rounded; posterior submargin angular or obscurely carinated, the end obliquely truncated; posterior side shortest, and slightly bent or waved; lateral teeth in the right valve only. Length 3-10. Height $\frac{1}{4}$.

Donax funerata.

Triangular, small, convex, with obsolete radiating lines; anterior side short, end truncated, direct; margin within finely crenulated; lateral teeth none. Length 3-10.

Very rare. I found it about 8 miles N. E. of Vicksburg.

1. *Cytherea Astartiformis.*

Trigonal, elevated, ventricose, subequilateral, with numerous regular concentric grooves and obtuse ridges; lunule not defined; summits prominent; umbo flattened. Length 6-10. Height $\frac{1}{2}$.

This shell has a remarkable resemblance on the exterior to some species of *Astarte*. Rare.

2. *Cytherea imitabilis.*

Cordate, inequilateral, plano-convex, with numerous concentric prominent acute ribs; extremities rounded; basal margin regularly curved; lunule ovate, defined by an impressed line. Length 1 7-10. Height 1 3-10. Common.

3. *Cytherea Mississippiensis.*

Subtriangular, ventricose, elevated, with prominent concentric acute ribs, rather distant, and with irregular intervals and fine intermediate lines: posterior margin somewhat curved; basal margin profoundly rounded; summits prominent; inner margin entire. Length 1¼. Height the same nearly. Rare.

4. *Cytherea sobrina.*

Subovate, ventricose, polished; with rather obtuse irregular distant, concentric, impressed lines; umbo entire; extremities rounded; base regularly curved. Length 1 1-10. Height 9-10.

Very abundant. Almost always with disunited valves. It is quite thick on the anterior side towards the summit.

5. *Cytherea perbrevis.*

Ovate-triangular, elevated, ventricose: the posterior and anterior margins equally declining and very oblique, the anterior one straight, the posterior slightly curved; beaks medial; surface with numerous regular impressed lines; basal margin rounded. Length and height 6-10.

It is of the size, and has somewhat the form of V. *Astartiformis*, but the greater elevation, convex umbo, numerous impressed lines, and more rounded base, distinguish it from that species. Rare.

Corbis staminea.

Suboval, convex, thin, with lamellæform concentric striæ, about thirty-seven in number; posterior side with a slight fold; beaks medial. Length 1. Rare.

1. *Lucina Mississippiensis.*

Orbicular, thin and fragile, with minute obsolete radiating lines; anterior side shortest, the margin obliquely truncated, angular above and elevated; inferior margins rounded; posterior end obtusely rounded; lunule profound; cardinal and lateral teeth wanting. Length 9-10. Height ¾.

This species very much resembles *L. subvexa* of Claiborne, but wants the impressed line on the posterior side. Rare.

2. *Lucina perlevis.*

Orbicular, with lamellæform concentric lines, and very minute obsolete radiating lines, closely arranged; beaks medial; posterior end direct; cardinal teeth small. Length 4-10. Height rather less. Very rare.

The shells of this subgenus are orbicular, generally punctate within, often very thin and ventricose; cardinal teeth small and compressed, sometimes obsolete or wanting; lateral teeth none. *Lucina radula*, and *L. edentula*, among recent species, belong to this group.

1. *Loripes? turgida.*

Suborbicular, very thin and fragile, with minute concentric lines; beaks medial; umbo and summit prominent; margins regularly rounded. Height 6-10. Length rather more than 5-10.

2. *Loripes eburnea.*

Suborbicular, slightly oblique, convex, with minute closely arranged concen-

tric lines, and a few larger impressed lines; posterior margin truncated, direct; anterior end and anterior basil margins regularly rounded; posterior basal margin obliquely truncated; beaks nearest the posterior end. Length 6-10. Height 6-10 nearly.

Corbula intastriata.

Subtriangular, inflated, rostrated posteriorly; within with fine radiating lines; Length $\frac{1}{2}$. Very rare.

1. *Corbula alta.*

Subtriangular, profoundly elevated, slightly oblique; larger valve ventricose; summit very prominent; umbo broad; hinge plate thick, with large teeth; smaller valve somewhat flattened, angular over the umbonial slope. Length 6-10 nearly. Height 6-10.

Occurs abundantly about 8 miles N. E. of Vicksburg, and always waterworn.

2. *Corbula engonata.*

Triangular, inequilateral, small; valves nearly or quite equally convex, and with angular concentric ridges; posterior slope concave; umbonial slope carinated. Length 3-10.

Chama Mississippiensis.

Suboval, irregular, adhering; larger valve ventricose, with numerous irregular radiating lines, squamose inferiorly; upper valve with numerous concentric lines, with numerous small scales. Length $\frac{3}{4}$. Height 6-10.

Rare, and occurs on Dr. Smith's plantation, 6 miles N. E. of Vicksburg.

Pectunculus arctatus.

Short-ovate, convex depressed, with little prominent flattened radii, divided by a longitudinal impressed line towards the base; anterior margin truncated: posterior margin nearly rectilinear. Length $\frac{2}{3}$. Height 6-10.

Rare, and occurs on the bank of Yazoo river, about 14 miles from Vicksburg.

There is in the collection a valve of another species of Pectunculus, which is small, and resembles the young of *P. pulvinatus.*

1. *Nucula serica.*

Subelliptical, with minute regular concentric closely-arranged lines; anterior end acutely angular; posterior end acutely rounded; posterior side shortest. Length $\frac{1}{2}$. Common.

2. *Nucula Vicksburgensis.*

Obliquely subtriangular, convex, with minute obsolete radiating lines about the base; lunule elliptical, very large and impressed. Length $\frac{1}{3}$. Rare.

Arca Mississippiensis.

A species of Arca occurs in great abundance at Vicksburg, which Lesueur obtained many years since and named it, but I have forgotten the name, and know not whether he published it in Europe or not. It is rhomboidal, ventricose, with rather distant ribs in the right valve, slightly grooved in the middle; in the left valve ribs double and granulated; inner margin profoundly toothed. Length 8-10.

1. *Byssoarca lima.*

Trapezoidal, cancellated and granulated; radii largest on anterior and posterior slopes, but becoming obsolete towards the posterior extremity; end angular, margin above obliquely truncated; anterior end widely truncated, nearly direct; basal margin undulated, irregular and very variable in outline; hinge line crenulated under the beaks, profoundly toothed towards the extremities: cardinal area with lines strongly defined and angulated under the apex. Length 2 9-10. Rare.

2. *Byssoarca Mississippiensis.*

Trapezoidal, with numerous closely-arranged radiating lines, crenulated by fine concentric lines, the crenulation most distinct anteriorly, when the radii are largest; anterior end truncated or a little convex, direct: posterior margin obliquely truncated above; basal margin widely and profoundly arched; hinge line long, linear, minutely crenulated, expanded towards the extremities, and with prominent teeth; cardinal area with fine very closely-arranged lines, angulated under the apex. Length 1 6-10.

Differs from the preceding in having a longer hinge, finer radii, &c., and is a much smaller species and more abundant.

3. *Byssoarca protracta.*

Trapezoidal, elongated, with numerous radiating lines, some of which are double, and others alternated in size and finely crenulated; dorsal margin, parallel with the base; anterior margin truncated, posterior a little concave, oblique, end very acutely rounded or subangular; basal margin slightly contracted; hinge line long, rectlinear, very regular and gradually increasing in width towards the extremities from the apex; cardinal area wide, depressed concave, with a few fine impressed angular lines. Length $1\frac{1}{3}$. Height $\frac{1}{2}$ nearly.

A pretty species of which I found one valve only.

Avicula argentea.

Ovate-subquadrangular, thin and fragile, ventricose above, smooth and entire? anterior wing sharply angular; posterior wing not produced, rectangular at the extremity; posterior end angular, extending beyond the hinge line and much above the line of the base; anterior margin and base form a regular rounded outline. Height $1\frac{1}{2}$. Length 1 4-10. Not common.

Modiola Mississippiensis.

Slightly arched, elongated, ventricose, with rather fine closely-arranged radiating lines wanting on the anterior side; region of umbonial slope inflated posterior end acutely rounded; beak angulated posteriorly; substance of shell silvery and perlaceous. 2-10th from beak to base. Rare, except in one spot, where I obtained several specimens and fragments.

Pinna argentea.

Trianugular, with straight margins and acute summit; compressed; substance highly polished and silvery; valves with longitudinal radii on more than half

the disc, about thirteen in number; anterior side with rugose, obtuse, oblique, finer and more approximate lines. Length $2\frac{3}{4}$. Rare.

Lima staminea.

Subovate, oblique, inflated, with fine radiating lines; ears very small, scarcely defined; posterior margin rectilinear. Height 4-10.

Very similar in outline to the Miocene species, *L. papyria*, but it is much smaller, and has more numerous lines anteriorly. Rare.

Pecten.

A valve of a small species was obtained. It is orbicular and entire, and resembles P. *calvatus*, (Morton.)

Ostrea Vicksburgensis.

Plicated; very irregular and adhering, the upper valve not flat, but swelling in an irregular manner. Height $1\frac{3}{4}$.

There is nothing peculiar about this shell, yet it is clearly distinct from any other species of the American Tertiary hitherto described. Common.

Pholas triquetra.

Subtriangular, depressed and angulated posterior to the middle, and with an impressed line from beak to base; surface with oblique lines anteriorly, and a few radiating towards the margin; posterior side reflected and with oblique lines meeting the anterior ones at an angle; a few obsolete radiating lines, one more conspicuous than the others, near the margin. Length 6-10. Height $\frac{1}{2}$.

I found one valve only, which occurred on Dr. Smith's plantation.

Madrepora Mississippiensis.

Rounded; cells numerous, very unequal in size, prominent, some of them very large, the sides with strong longitudinal lines, and the interstices with minute closely-arranged longitudinal lines; rays about fourteen, minutely crenulated on the edge, alternated with a short plate; centre with irregular grains. Diameter 6-10.

Madrepora Vicksburgensis.

Irregular, ramose, somewhat flattened; cells unequal in size, with a slightly prominent margin; submargin depressed, striated; rays alternated with a short plate; centre granulated.

A larger species than the preceding, the branches being sometimes an inch in diameter. Abundant.

Turbinolia caulifera.

Somewhat turbinate, rather long, with fine equal granulated longitudinal lines; base stem-like; rays ramose; larger end oval. Length 8-10. Rare.

Lunulites.

Two or three species of *Lunulites* occur in the Eocene of Vicksburg.

Lunulites Vicksburgensis.

Cup-shaped or somewhat conical, with very small cells, generally equal in size, subangular, and between each series is a minute impressed radiating line: interior striæ ramose and very minutely crenulated. Height $\frac{1}{4}$.

Descriptions of New Eocene Fossils in the Cabinet of Lardner Vanuxem.

The following organic remains were obtained from Eocene rocks in St. Matthew's Parish, Orangeburg District, S. C., by Lardner Vanuxem.

1. *Nucula mucronata.*

Elliptical, convex in the middle, with equal, laminated, not closely-arranged lines, about seventeen in number; anterior side longest, the end acutely pointed; a submarginal furrow emarginates the base; posterior side slightly contracted, end obtusely rounded or subtruncated. Length 9-10. Height 5.

2. *Nucula carolinensis.*

Somewhat elliptical, convex, with rather closely-arranged prominent concentric lines, wanting on the posterior side, which is rather shorter that the anterior and regularly rounded at the end; anterior submargin with a narrow groove, bounded by a subcarinated line; anterior side narrowed and rather obtuse at the end. Length $\frac{1}{2}$. Height $\frac{1}{4}$.

3. *Nucula subtrigona.*

Subtriangular, ventricose, nearly equilateral, with numerous prominent concentric lines; anterior side pointed, flexuous; submargin angulated: anterior margin sinuous, end angular; ligament margin straight; basal margin profoundly rounded. Length $\frac{3}{8}$. Height $\frac{1}{4}$ nearly.

4. *Nucula calcarensis.*

Subovate, ventricose, with minute closely-arranged concentric lines; anterior side longest, pointed, slightly recurved, without a submarginal groove or fold; base profoundly rounded. Length 7-16. Height $\frac{1}{4}$.

1. *Cardita vigintinaria.*

Suborbicular, inequilateral, ventricose, with about thirty square radii, about as wide as the interstices; umbonial slope rounded; anterior margin subtruncated. Length 7-8. Height 7-8.

2. *Cardita carolinensis.*

Suborbicular? profoundly ventricose, with about thirty very prominent square radii, on the anterior side sharp, recurved and crenulated; lunule very broad and cordate, deeply impressed; hinge thick; pit anterior to the cardinal tooth small and profound.

This is a fragment of the right valve, about 5-8ths of an inch long.

3. *Cardita bilineata.*

Subrhomboidal, very inequilateral, with about twenty-four wide, flattened radii, with very narrow interstices, a carina in the middle of each rib, with an impressed line on each side of it; ribs crenulated anteriorly; carina somewhat tuberculated on the posterior side of the shell. Length $\frac{3}{4}$. Height 9-16.

4. *Cardita subquadrata.*

Trapezoidal, compressed; valves flattened in the middle; radii about twenty-five, broad on the disk, with very narrow interstices, and each rib with a crenulated carina in the middle; posterior to umbonial slope the ribs are smooth, not carinated; anterior side short, rounded at the end; posterior margin obliquely truncated. Length 6-10. Height 7-20.

5. *Cardita subrotunda.*

Orbicular, inequilateral, ventricose, with about twenty-eight rounded prominent narrow radii; ligament margin very oblique, short; ends obtusely rounded inner margin slightly crenulated. Length $\frac{1}{2}$. Height $\frac{1}{2}$.

Turbo biliratus.

Turbinate; volutions four, flattened above; body whorl with two distant revolving carinated lines, and intermediate fine revolving lines; volutions of the spire with a carinated line below the middle. Length $\frac{3}{8}$. Width $\frac{3}{8}$.

1. *Cerithium bicostellatum.*

Turreted; volutions eight or nine. angular and carinated below the middle: body whorl bicarinated. Length $\frac{5}{8}$.

2. *Cerithium siliceum.*

Turreted; whorls rounded below, contracted or concave above, and with revolving lines; suture profound. A fragment. Width $\frac{3}{8}$.

Infundibulum carinatum.

Depressed, with a suddenly elevated acutely conical spire, and a carinated line revolving at the suture. Length of fragment $\frac{5}{8}$.

All the preceding fossils are from the Eocene rocks of St. Matthew's Parish, Orangeburg District, S. C. Not one species of this locality is known in the lower Eocene of Claiborne or elsewhere, nor in the upper Eocene of Vicksburg, and therefore the relative age of the deposit is uncertain, but it unquestionably belongs to the Eocene period. Near this rock Mr. Vanuxem found quite a different class of shells, consisting of casts in indurated clay. The relative position is undetermined. Two of the shells are described and named *Tellina subequalis* and *Lutraria petrosa.*

Tellina subequalis.

Somewhat elliptical, nearly equilateral; posterior end acutely rounded; anterior slightly bent, end rounded. (A cast.) Length $1\frac{1}{4}$. Width $\frac{5}{8}$.

Madrepora punctulata.

Cylindrical, ramose with prominent cells; whole surface ornamented with fine, equal, punctate, impressed lines. Diameter $\frac{1}{2}$.

Locality. St. Mathew's Parish, Orangeburg, S. C. Vanuxem.

A species highly ornamented by the punctate vermicular lines. It occurs much larger than the speeimen described.

In Vanuxem's collection there is a cast, from the Eocene near Long Branch,

N. J., resembling *Nautilus zig zag*, (Sow.) It is more compressed than that species, and the angles of the septa appear to be in contact near the periphery. It is more like a Goniatite than a Nautilus, and may properly constitute a genus, which I propose to name Nautilopsis.

Nautilopsis Vanuxemi.

Length $2\frac{3}{4}$. Diameter 1 5–16.

N. zig-zag may be referred to the same genus.

The Society, in accordance with the resolution adopted at last meeting for business, proceeded to the election of a Recording Secretary in the place of Mr. Moss, resigned—when Mr. John Lambert was unanimously elected.

A letter was read from Mr. Wm. C. Redfield, dated New York, Oct. 19, 1847, requesting the loan of the Westfield specimens of fossil fish, in the collection of the Academy, for the purpose of description by Mr. Agassiz, in his Memoir on the American Fossil Fishes from the New Red Sandstone, now in course of preparation.

On motion, the By-law relating to the loan of specimens from the Museum, was temporarily suspended, and the request of Mr. Redfield complied with by the Society, under proper restrictions.

ELECTION.

Messrs. Charles Lennig, J. Dickinson Sergeant, Edward M. Kern, Charles Klemm, and Prof. James B. Rogers, all of Philadelphia, were elected *Members;* and

Dr. P. W. Korthals, of Leyden, was elected a Correspondent.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. III. NOV. AND DEC., 1847. No. 12.

Stated Meeting Nov. 2, 1847.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A living specimen of Ursus Americanus, from Chicago, Michigan, and a specimen in spirits of Salamandra venenosa, from Michigan. Presented by Mr. Lewis J. Germain.

Numerous specimens, in spirits, of Coleopterous insects; also Achatina perdrix, and a serpent of large size, probably new, from Africa. Presented by Rev. T. S. Savage.

Fine specimen of Squilla ———, from the West India coast. From Captain H. S. Baker.

Stigmaria ———, from Lycoming county, Pennsylvania. From Mr. J. R. Pollock, of Philadelphia.

Several varieties of Copper Ore, from the Flemington Copper Mine, N. J. From Peter A. Browne, Esq.

Dr. Morton deposited six elongated heads of old Peruvians, from the Tombs at Areca, another similar one through Dr. Dickeson, and the head of a Mexican officer slain in one of the recent engagements.

DONATIONS TO LIBRARY.

Fauna der Vorvelt mit steter Berucksichtigung der lebenden Thiere-Monographisch dargestellt von Dr. C. G. Giebel. 8vo. Leipzig, 1847. From Mr. John Lambert.

Resultate geologischer, anatomischer, und zoologischer untersuchungen über das unter dem namen Hydrarchos, von Dr. A. C. Koch, zuerstnach Europa gebrachte und in Dresden ausgestellte grosse fossile skelett. Von Dr. C. G. Carus, &c. Folio. Dresden und Leipzig, 1847. From the same.

Results of Astronomical observations, made during the years 1834–5–6–7 and 8, at the Cape of Good Hope. By Sir John F. W. Herschel. 4to. London, 1847. From the Duke of Northumberland, through the Author.

Oken's Isis. Nos. 5 and 6, for 1847. Deposited by Dr. Wilson.

An attempt to discover some of the laws which govern animal torpidity and hybernation. By Peter A. Browne, LL. D. 8vo. pamphlet. Philadelphia, 1847. From the Author.

D. R. E. Griffith deposited the following large collection of works :

The elements of experimental Chemistry. By Wm. Henry, M. D. Fourth American edition. 8vo. Philadelphia. 1847.

Tabula affinitatum animalium, &c. Auctore Johanne Hermann, M. D. 4to. 1783.

A Dictionary of Chemistry. By William Nicholson. 2 vols. 4to. London, 1795.

The Cabinet of Natural History, and American rural sports, with illustrations. 2 vols. 4to. Philadelphia, 1830, '32.

The Universal Gardener and Botanist, or a general dictionary of Gardening and Botany. By Thomas Mawe and John Abercrombie. 2nd edition. 4to. London, 1797.

The Theory of the Earth : containing an account of the origin

of the Earth, and of all the general changes which it hath undergone, or is to undergo 'till the consummation of all things. Folio. London, 1684.

Mélanges intéressans et curieux, ou abrégé d'historie naturelle, morale, civile, et politique de l'Asie, l'Afrique, l'Amerique. et des terres polaires: par M. R. D. S * *. 5 vols. 12mo. Paris, 1763.

Mélanges d'historie naturelle: par M. A. D. 2 vols. 12mo. A. Lyon. 1763.

Physionomies nationales des Peuples, ou les traites de leur visage comparée à leur mœurs et caracteres. 12mo. Paris.

Historie naturelle des animaux par Pline. Traduction nouvelle evec le text en regard, par P. C. B. Gueroult. 3 vols. Svo. Paris, 1802.

An historical disquisition on the Mammoth, and other tracts on Natural History, in one vol. Svo.

Fossils arranged according to their obvious characters, with their history and descriptions, &c. By J. Hill, M. D. Svo. London, 1781.

Familiar letters to Henry Clay, of Kentucky, describing a winter in the West Indies. By Joseph John Gurney. Svo. New York, 1840.

The Philosophy of Natural History. By William Smellie. Svo. Philadelphia, 1791.

Chemical manipulation, being instructions to Students in Chemistry, &c. By Michael Faraday, F. R. S., &c. First American from last London edition. Edited by J. K. Mitchell, M. D. Svo. Philadelphia, 1831.

The Economy of Nature, explained and illustrated on the principles of modern Philosophy. By G. Gregory, D. D. 3 vols. Svo. London, 1796.

A System of Chemistry of inorganic bodies. By Thomas Thomson, M. D. 7th edition. 2 vols. Svo. London and Edinburgh, 1831.

A system of Vegetables, according to their classes, genera, &c., in 2 vols. Svo. Translated from Murray's Edition of

Linnæus' Systema Vegetabilium. By a Botanical Society at Litchfield. Litchfield, 1793.

Animal Chemistry, with reference to the Physiology and Pathology of Man. By J. Franz Simon. Translated and edited by George E. Day, M. A. 8vo. Philadelphia, 1845.

Memoirs of the Life of Dr. Darwin. By Anna Seward. 8vo. Philadelphia, 1804.

Zoonomia, or the laws of organic life. By Erasmus Darwin, M. D. 2 vols. 8vo. New York, 1796.

Principes de Physiologie, ou introduction á la science experimentale, philosophique, et medicale de l'homme vivant. Par Charles Louis Dumas. 2d edition. 4 vols. 8vo. Paris, 1806.

Concours sur l'acetification de l'Alcool; question proposée par la Société de Pharmacie de Paris. 8vo. Paris, 1838.

Observations on the Climate in different parts of America, compared with the climate in corresponding parts of the other continent, &c. By Hugh Williamson, M. D. 8vo. New York. 1811.

Manuel du fabricant de produits chimiques, &c.: par M. L. S. Thillaye. 2 vols. 12mo. Paris, 1829.

Georg. Casp. Kirchmaieri de Paradiso, &c. 12mo. 1662.

Arcana of Science and Art, or an annual register of useful inventions and improvements, &c. 2 vols. 12mo. London, 1837–8.

The Year Book of Facts in Science and Art, &c. By the editor of the Arcana of Science. 12mo. London, 1839.

A practical Essay on the analysis of Minerals. By Frederick Accum. 1st American edition. 12mo. Philada., 1809.

The Young Chemist's Pocket Companion. By James Woodhouse, M. D. 12mo. Philada., 1797.

The Chemical Pocket Book. By James Parkinson. With an Appendix, by James Woodhouse, M. D. 12mo. Philada., 1802.

Outlines of Medical Botany. By Hugo Reid. 2d edition 12 mo. Edinburgh, 1829.

A popular treatise on Vegetable Physiology. Svo. Philada. 1842.

Organic Chemistry in its applications to Agriculture and Physiology. By Justus Liebig, M. D.; edited by Lyons Playfair, M. D. 1st American edition, by John W. Webster, M. D. Svo. Cambridge, 1841.

Expériences pour servir a l'histoire de la géneration des animaux et des plantes. Par M. l'Abbe Spallanzani. 3 vols. Svo. Paris, 1787.

The Bridgewater Treatises. Treatise IV. The Hand, its mechanism and vital endowments. By Sir Charles Bell, F. R. S. &c. 12mo. Philada. 1833.

The Contemplation of Nature, translated from the French of C. Bonnet. 2 vols. 12mo. London: 1766.

A Classical Tour through Italy, in 1803. By the Rev. John Chetwood Eustace. 4th edition. 4 vols., Svo. Leghorn: 1818.

An introduction to the Science of Botany, chiefly extracted from the works of Linnæus. By the late James Lee. 4th edition. Svo. London: 1810.

A manual of Analytical Chemistry. By Henry Rose. Translated from the German, by John Griffin. Svo. London: 1831.

An epitome of Chymical Philosophy. By James Freeman Dana. Svo. Concord, N. H., 1825.

Nouveau systéme de Chimie organique, fondé sur des méthodes nouvelles d'observation. Par F. V. Raspail. Svo. Paris: 1833.

Museum Calonnianum. Specification of the various articles which compose the magnificent Museum of Natural History, collected by M. de Calonne, in France. Svo. London: 1797.

Rambles in Europe in 1839, &c. By William Gibson, M. D., 12mo. Philada.: 1841.

An expedition of discovery into the interior of Africa, through the hitherto undescribed countries of the great Namaquas,

Boschmans and Hill Damaras; conducted by Jas. Edward Alexander, K. S. S. 2vols. 12mo. Philada. 1838.

Dr. Morton read an extract from a letter from Dr. Falconer, of the East India Company, in relation to some casts of valuable Sivalik Fossils, which he stated could be obtained by the Academy from the East India House upon applying to the latter through the American Minister at London. The application was accordingly ordered to be made through the Corresponding Secretary.

Dr. Dickeson made some observations on the mode of compression of the cranium in use among the Choctaw Indians, and the supposed object of the same.

Stated Meeting, Nov. 9, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Dr. Wilson presented the following mounted Mammalia:—Semnopithecus comatus, (2 specimens,) Ateles pentadactylus? (2 specimens,) Cercopithecus pithecia, C. cynomalgus, Inuus nemistrinus, Cebus apella, Lemur ———, Harpale rufimanus, Heazus tardigradus, Viverra mellivora, V. ———, (5 specimens,) Mustela zorilla, M Hernani, M. erminea, Gulo orientalis, Tapirus——, Dasypus tricinctus, Sciurus palmarum, S. plantani, S. melanotus, S. Bergianus, S. omnicolor, (2 specimens,) S. ——, Pteromys sagitta, P. ——, Hylagale Javanica, (2 specimens,) Pteropus minimus, P. edulis, Galeopithecus variegatus, Vespertilio serotinus, V. pipistrellus, V. auritus, V. pictus, V.—— (2 specimens,) Sorex araneus, and four Marsupialia. Also the following Saurians:—Polychrus marmoratus, Tejus

ameiva, T. monitor, Platydactylus vittatus, P. guttatus, Iguana delicatissima, Tupinambis elegans, (2 specimens,) T. bivittatus, T. ornatus, Crocodilus ——, (young,) Chelonia viridis, C.——, Emys serratus, E.——, Testudo ——, and two exuviæ of Coluber constrictor. Also several fragments of wood bored by a large Teredo, nests and eggs of an Edila, from the East Indies, nest of Parus caudatus, from France, and a species of Spongia, from the E. Indies.

Mr. J. R. Pollock, of Philadelphia, presented a beautiful and remarkably pure specimen of the newly made comb of the honey bee.

Dr. Morton deposited crania of Ursus arctos, of Sweden, and of the Antilope Americana, of New Mexico.

DONATIONS TO LIBRARY.

Foraminiferes fossiles du Bassin tertiaire de Vienne, decouverts par son Excellence le Chevalier Joseph de Hauer, et décrits par Alcide D'Orbigny. 4to. Paris, 1846. From the Author.

American Journal of Agriculture and Science. No. 18, Oct. 1847. The Editors.

Statistics of South Carolina, including a view of its natural, civil, and military history, general and particular. By Robert Mills. 8vo. Charleston, S. C., 1826. In exchange.

The following works were deposited by Dr. Wilson:

Reports on Zoology for 1843, '44, (Ray Society.) 8vo. London, 1847.

Narrative of the Surveying voyage of H. M. S. Fly, commanded by Capt. F. P. Blackwood, R. N., in Torres Strait, New Guinea, and other islands of the Eastern Archipelago, during the years 1842, '46, together with an excursion into the interior of the eastern part of Java. By J. Beete Jukes, M. A., &c. 2 vols. 8vo. London, 1847.

Figures of Molluscous animals, selected from various authors;

etched for the use of students, by Maria Emma Gray. Vol. 1. 8vo. London, 1847.

Molluscous Animals, including shell-fish, &c. By John Fleming, D. D., &c. 8vo. Edinburg, 1837.

Elements of Physiophilosophy. By Lorenz Oken, M. D., From the German, by Alfred Tulk, (Ray Society,) 8vo. London, 1847.

The Naturalist's Library. Vols. 7, 8 and 10, of Ornithology. 12mo.

Geology for Beginners; comprising a familiar explanation of Geology and its associate sciences, &c. By G. F. Richardson, F. R. S. 8vo. London, 1843.

The Cabinet Cyclopedia; conducted by the Rev. Dionysius Lardner, and others. Birds, by William Swainson. Vols. 1 and 2. Geology, by John Phillips. Vols. 1 and 2. 12mo.

Report of the Geology of the county of Londonderry, and of parts of Tyrone and Fermanagh. By J. E. Portlock, F. R. S., &c. 8vo. Dublin, 1843.

Proceedings of the Geological Society of London. Vols. 1 2, 3 and 4. 8vo.

Fossilia Hantoniensia collecta et in Musæo Britannico deposita a Gustavo Brander. 4to. London, 1766.

The Annals and Magazine of Natural History, No. 132, Sept. 1847.

Observations on some peculiarities observable in the structure of the Gannet (Pelecanus bassanus;) and an account of a new and curious insect, discovered to inhabit the cellular membrane of that bird. By George Montagu, Esq., F. R. S. 8vo. pamphlet.

Dalman's Trilobites. 1 vol. 4to.

Nomenclator Zoologicus, continens nomina systematica generum animalium tum viventium quam fossilium, &c. Auctore L. Agassiz. 4to. Soloduri, 1847.

The Genera of Birds. By George Robert Gray. Part 40. 4to.

The Genera of Diurnal Lepidoptera. By Edward Doubleday, F. L. S. Part 11. 4to.

A natural History of Fossils. By Emanuel Mendes da Costa. Vol 1. Part 1. 4to. London, 1757.

An Introduction to Geology. By Robert Bakewell. 8vo. 2d American edition, from 4th London. New Haven, 1833.

Bartlett's Index Geologicus (chart.)

A history of the fossils insects in the secondary rocks of England. By the Rev. Peter Bellinger Brodie, M. A., &c. 8vo. London, 1845.

The Quarterly Journal of the Geological Society of London. No. 11. August, 1847.

Fossils of the Tertiary formations of the United States. By T. A. Conrad. Nos. 1, 2, 3.

Geological Survey of Pennsylvania. 1st, 2d, 3d, 4th and 5th Annual Reports. By Henry D. Rogers, State Geologist.

Report of the Geological Reconnoisance of the State of Virginia. By Wm. B. Rogers. Philada., 1836.

Coloured illustrations of the eggs of British Birds, accompanied with descriptions of the eggs, nests, &c. By Wm. C. Hewitson. 34 Nos. 8vo. London.

Histoire naturelle des Crustacés fossiles, &c.; les Trilobites, par Alex. Brongniart; les Crustacés proprement dits, par Anselme Gaëton Desmarest. 4to. Paris, 1822.

Description des animaux fossiles qui se trouvent dans le Terrain Carbonifére de Belgique. 2 vols. 4to. Liege, 1842, '44.

Fauna Boreali-Americana; or the Zoology of the northern parts of British America. By John Richardson, M. D., F. R. S., assisted by Wm. Swainson, Esq., and the Rev. Wm. Kirby. 4 vols. 4to.

Transactions of the Geological Society of London. 1st series, complete in 5 vols. 4to. 2d series. Vols. 1, (part 2,) 2, 3, 4, 5 and 6, and parts 1, 2 and 3 of vol. 7. 4to.

Icones fossilium sectiles. 4to. pamphlet.

Beiträge zur Flora der Vorwelt. Von August Joseph Corda. Folio. Prag, 1845.

An account of the English colony in New South Wales, from its first settlement in January, 1788, to August, 1801, &c. By Lieut. Col. Collins. 4to. London, 1804.

Narrative of an expedition to explore the river Zaire, usually called the Congo, in South Africa, in 1816, under the direction of Capt. J. K. Tuckey. R. N. &c. 4to. London, 1818.

Journal of a voyage for the discovery of a north-west passage from the Atlantic to the Pacific; performed in the years 1819–20, in H. M. ships Hecla and Griper, under the orders of Wm. Edward Parry, R. N., F. R. S. 4to. London, 1821; and supplement, 4to. London, 1824.

Journal of a second voyage, &c., in the years 1821, '22, '23, in H. M. ships Fury and Hecla, under the command of Capt. Parry. 4to. London, 1824; and appendix, 4to. London, 1825.

Journal of a third voyage, &c., performed in 1824, '25, in H. M. ships Hecla and Fury, under the command of Capt. Parry. 4to. London, 1826.

The North Georgia Gazette and Winter Chronicle. 4to. London, 1821.

An account of experiments to determine the figure of the earth, by means of the pendulum vibrating seconds in different latitudes, as well as on other subjects of philosophical inquiry. By Edward Sabine. 4to. London, 1825.

Letters were read from the Chevalier de Hauer, dated Vienna, Sept. 22, 1846, presenting the work, "Foraminefères fossiles du Bassin Tertiaire de Vienne."

And from Mr. John Fehlands, dated Hamburg, Oct. 14th, 1847, acknowledging the receipt by Dr. Tschudi of Vienna, of the Vols. of the Proceedings, sent to him by resolution of the Academy.

A paper containing a description of a new Unio, by Mr.

Haldeman, was read and referred to a committee consisting of Dr. Griffith, Dr. Wilson, and Mr. Phillips.

Dr. Leidy made the following remarks upon the very slow destructibility of animal tissues in certain states.

The great length of time that animal matter may be preserved in a recent form, in ice, is so well known as hardly to need reference to the instance of the Siberian mammoth.

Bones and teeth, under ordinary circumstances, resist the influence of exterior agencies better than any of the other tissues, and then follow epidermic tissue, fibrous tissue, &c. Bones of the mastodon have long since been determined to contain almost as much gelatin as those of recent animals, and I have lately detected, by chemical analysis, the existence of animal matter in a portion of a vertebra of the Basilosaurus, a fossil of the Eocene tertiary period. A portion of this animal matter, preserved in alcohol, I exhibit to the Academy. It has a flocculent appearance, contains no gelatin, but readily carbonizes and takes fire, giving out an odour characteristic of burning animal substances; the ash it leaves behind contains a large proportion of oxide of iron.

If not exposed to the influence of air and moisture, bones will retain their animal matter for an indefinite period of time. We have, in the collection of the Academy, bones of the extinct Megalonyx, from White Cave, Tennessee, which look as fresh as though prepared but yesterday. But when they are exposed to air, and to alternations of dryness and moisture, or a constant but slightly moistened state, without the presence of carbonate of lime, silex, or oxide of iron, which tend rather to the preservation than destruction of the animal matter contained in them, the animal matter is gradually and almost wholly removed, leaving nothing but the earthy constituents, which, if they do retain the original form, readily crumble to pieces from the slightest violence. Of the softer animal tissues, the preservation of insects in amber, a resin belonging to a very ancient flora, is well known. But one of the most remarkable instances occurring under ordinary circumstances, which has been presented to my notice, is the existence of portions of fibrous membrane and articular cartilage, attached to some of the bones of the Megalonyx before spoken of, as exhibited in these specimens. By examining this piece of fibrous membrane, taken from one of the bones, it will be found to have retained all the characteristics of perfectly recent membrane; it imbibes moisture and becomes as flexible as if fresh. The articular cartilage has become hard and brittle and yellow in colour, and looks like resinous matter. A fragment beneath the microscope presented all the characters of

that form of cartilage, as represented in this drawing, which I took from it. The cartilage corpuscles are well preserved and very distinct. By soaking it in water it does not become tough and flexible, as in recent cartilage, but swells up and forms a thick jelly, which, after a few hours, dissolves in the water, and colours it yellow. A change has taken place in it, corresponding to that which occurs in most organic tissues when constantly kept in the dry state. The atoms or molecules undergo a change of relation in regard to each other, or new chemical combinations take place without destroying the form of the dried object, but destroying the power of its resuming its original form. The change is an exceedingly slow one; in many instances, after centuries have elapsed, no perceptible change has taken place. An instance in point was lately presented to us by Dr. Morton, who put a dried ear of an Egyptian mummy of the time of the Pharaohs, into water, in the hope that it would resume its former proportions, but instead of so doing, for a few days it appeared to undergo no change, except colouring the water yellow, as in the case of the articular cartilage of the Megalonyx. It then suddenly underwent rapid decomposition, and in the course of a day entirely disappeared; the solution for two days exhaled a putrid odour, which then disappeared, leaving the fluid coloured yellow and without further change.

A report was presented from the committee appointed on the subject of exchanges with M. Vattemare, proposing to forward to him for works lately received two copies of Vols. 1 and 2 of the Proceedings; and also to place in his hands for further exchanges, additional copies of the same, which was accordingly ordered.

Stated Meeting, November 16, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Cytherea, from California, presented by Dr. Joseph Wilson, U. S. N.

Boa constrictor, 12 feet long. Presented by Messrs. Raymond & Waring, through Dr. Watson.

Several living Opossums, for Dr. C. D. Meigs, Dr. Watson, and Dr. Wilson.

Heads of echinal spines from the Sivalik Hills. Presented by Dr. Morton.

DONATIONS TO LIBRARY.

Iconographie Ornithologique; par O. Des Murs. Liv. 9. 4to. Presented by Mr. Edward Wilson.

Revue Zoologique. Nos. 7 and 8, 1847. Deposited by Dr. Wilson.

The National Magazine and Industrial Record. Edited by Redwood Fisher. 18 Nos. complete. New York, 1845--46. From the Author, through Mr. Thomas Fisher.

The following extract from a letter from Prof. Haldeman, dated 11th November, 1847, was read.

"Herpetologists now suppose that Salamandra *erythronota*, Green, and S. *cinerea*, Green, are opposite sexes of the same species. The two are frequently found under the same stone or log, but I have never seen one with intermediate characters. I recently found six individuals and submitted them to dissection. Four of *cinerea*, opened successively, proved to have gravid ovaries, and two of *erythronota* to be males; but to be certain, I submitted the seminal matter to microscopic examination, and found spermatozoa, although not fully developed. Subsequently I found two *erythronota* with gravid ovaries, so that not being sexual, and no intermediate forms having been observed, I am induced to believe that Green was right in proposing two species."

Stated Meeting Nov. 23, 1847.

Vice President MORTON in the Chair.

DONATIONS TO MUSEUM.

Fossil Saurian bones in a matrix of conglomerate, comprising several vertebræ, parts of paddle, &c., probably an undescribed extinct animal. Found near Hossack Creek,

Berks Co , Pa., five or six feet below the surface. Deposited by Dr. Joel Y. Shelley, of Berks county.

Specimens in spirits, of Leptophis oestivus, and Coluber eximius. Presented by Dr. Pennock.

Fossil bones of a new genus of extinct Ruminants, consisting of the cranium and parts of a humerus, ulna, and radius. Deposited by Mr. Joseph Culbertson, of Chambersburg, Penn.

Cranium of Vulpes fulvus. Deposited by Dr. Morton.

Native silver from Guanaxato, Mexico. Presented by Dr. Griffith.

Specimen of Loxia cardinalis. From Mr. Phillips.

DONATIONS TO LIBRARY.

American Journal of Science and Arts. New Series. Vol. 4. No. 12. From the Editors.

On the inhalation of the vapour of ether in surgical operations. By John Snow, M. D. 8vo. London, 1847. From Mr. Lambert.

A Medico-botanical catalogue of the plants and ferns of St. Johns, Berkley, S. C. An inaugural thesis for the degree of M. D. By Francis Peyre Porcher. 8vo. pamphlet. Charleston, S. C. 1847. From the author.

Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 4. No. 1. From the Association.

The Geognosy of the Island of St. Helena, in a series of views, plans, and sections, with remarks and observations. By Robert F. Seale. Folio. London, 1834. From Mr. Saml. Ashmead.

Dr. Wilson deposited the following :

An analysis of the British Ferns and their allies. By G. W. Francis, F. L. S. 2d edition. 8vo. London, 1842.

A history of British Ferns and allied plants. By Edward Newman, F. L. S. 8vo. London, 1844.

The Natural history of Carolina, Florida, and the Bahama Islands, &c. By Mark Catesby, F. R. S. 2 vols. Folio. London, 1731.

The Genera of Diurnal Lepidoptera. By Edward Doubleday, F. R. S. Part 12. 4to.

The Genera of Birds. By Geo. Robert Gray, F. R. S. Part 41. 4to.

The Annals and Magazine of Natural History. No. 133.

An outline of the Geology of Norfolk. By Samuel Woodward. 8vo. Norwich, 1733.

The Zoologist's Text Book, &c. By Capt. Thomas Brown. 2 vols. 12mo. Glasgow, 1832.

Mémoires presentés a l'Academie Imperiale des Science de St. Petersburg. Vols. 1—5, and vol. 6, No. 2. 4to.

Dr. Griffith deposited the following:

Symbolæ ad historiam Heliceorum. Auctore Dr. Lud. Pfeiffer. 8vo. Casselis, 1841.

Philosophie Anatomique ; Des Organs Respiratoires sous le rapport de la determination et de l'identité de leurs piéces osseuses ; par M. le Ch. Geoffroy St. Hilaire. 1 vol. 8vo. and Atlas. 4to. Paris, 1818.

The Naturalist's Library : conducted by Sir. Wm. Jardine ; Mammalia 6 vols., Ornithology, 8 vols.; Icthyology, 1 vol. Entomology, 4 vols. 12mo.

Species général et Iconographie des Coquilles vivantes, &c. Par L. C. Kiener. 8vo.

A letter was read from Mr. Richard Brown, of Nova Scotia, addressed to Prof. Johnson, dated Sydney Mines, 27th Oct. 1847, containing the following in relation to some Fossil fruits from the coal steam of that district:

These Fossils were found in one part of the mine only, scattered over an area of three or four acres, in some places so thick that five or six might be found in one square yard. They lie in the Shale Roof immediately in contact with the Coal Seam.

Upright stems of Lepidodendra and Sigillariæ, with Stigmaria-like roots, are frequent in the same area, the fruits being sometimes found under their roots. I have broken up several of these Fossils, and found decisive marks of internal structure exhibiting their membranes of carbonaceous matter, and small pipes of Iron Pyrites terminating in scars on the external surface, supposed to be seed cells. I cannot find any decribed fossils resembling them more nearly than the Fruit of Podocarya from the oolite, in Buckland's Bridgewater Treatise.

A letter was read from Mr. Wm. Thompson, addressed to Dr. Griffith, dated Tunbridge Wells, Oct., 1857, announcing his intention to present certain Mollusca nudibranchiata, in spirits, and British Echinodermata and marine Algæ, and also some fossils, to the Academy.

Dr. Leidy read a paper "On a new genus and species of Fossil Ruminantia, Poëbrotherium *Wilsonii*;" which was referred to a committee composed of Drs. Pickering, Bridges, and Morton.

Dr. Hallowell communicated a paper on the "Horned Viper of Western Africa," with a figure. Referred to Prof Haldeman, Dr. Pickering and Dr. Leidy.

Professor Johnson exhibited a specimen of a boiler sediment derived from a steam boiler used at Burlington, New Jersey, which uses clear spring water. It is dark brown, has a specific gravity of 1.235, contains 34.88 per cent. of earthy residue, and 65.12 per cent., of combustible material, melting only at 900—1000 degrees, though it softens at 260, and exhales an empyreumatic odour at 430°; and at 450° becomes reddish-brown and brittle. The sediment pulverized and boiled in alcohol gave, by slow evaporation, an oily substance, which separates in a white hydrated condition—but the water is lost below the boiling point of alcohol, leaving the oil a reddish-brown, capable of softening at 150°, and becoming fluid at 180°. The earthy matter contains carbonate of lime and magnesia, as well as silicate of alumina and oxide of iron.

Prof. Johnson also offered some observations on the fossil bones from Dr. Joel Y. Shelly, deposited this evening, which, from the appearance of the rock adhering to the specimens, he judged to belong to the formation which overlies the edges

of the Silurian rocks of the south mountains, and which is believed to be of the same age as the so-called Potomac marble.

Meeting for Business, Nov. 20, 1847.

Vice President MORTON in the Chair.

The Committee on Dr. Hallowell's paper, on the Horned Viper of Western Africa, reported in favor of publication:

On the Horned Viper of Western Africa.

BY EDWARD HALLOWELL, M. D.

CERASTES, Wagler.

Cerastes nasicornis.*

Syn. Coluber nasicornis. Shaw, General Zoology, p. 198.

Characters.—Head short and thick, two horns upon the snout, mouth large; a series of oblong quadrilateral bands upon the back, margined with triangular spots of black; a row of dark colored blotches upon each side of the animal in contact with the abdomen; between these and the triangular lateral blotches, other triangular dark colored spots with their bases toward each other; tail short.

Descriptions.—Physiognomy very repulsive; *head* short and thick, depressed, presenting two horns, each four lines in length upon the snout; opening of the mouth large, extending to within five lines of the posterior margin of the occiput; two large and powerful fangs on each side of the upper jaw; head covered with rhomboidal, hexagonal, and polygonal scales which are carinated; the scales are largest upon the occiput and sides of the head posteriorly; nostrils large, two lines in diameter, presenting upward and slightly backward; eyes rather small, latero-superior, on a line with the nostrils, and three lines posterior to them, slightly projecting, looking outward and a little upward; palatine and infra maxillary teeth recurved, sharp, pointed and strongly developed; tongue long, bifid

* Misprinted *Arastes* in the Proceedings, vol. ii. p. 250.

enclosed in a sheath; thirteen plates margin the upper jaw on the right, and fourteen on the left side of the head, exclusive of the rostral; the tenth on the right, and the eleventh on the left side are the largest; the shape of both is pentangular; the rostral plate is also pentangular, and incurvated inferiorly; there are sixteen plates along the margin of the lower jaw, exclusive of the mental, which is broad and triangular; the anterior geneials are oblong quadrilateral, the posterior, large and rhomboidal. *Neck* contracted, quite slender compared with the body, which is somewhat cylindrical and very thick in the middle, becoming slender towards the tail; tail quite short; upper part and sides of neck, body and tail covered with very strongly carinated scales; many of these scales are truncated posteriorly.

Color.—Upper part of head light brown ash color; a dark colored triangular blotch exists upon the side of the head, its apex touching the posterior margin of the orbit; another dark colored blotch, an inch in length, extends along the margin of the lower jaw; chin and throat light straw color, with numerous small black spots. A series of oblong quadrangular bands extends along the dorsum, commencing at the neck, and is lost upon the tail; in the young subject they are bordered with white; at each extremity is a dark triangular blotch, the apices of which touch each other: a row of dark colored triangular blotches is also observed along the margins of the quadrangular bars, contiguous with which are other triangular spots, having their bases toward each other; these are not represented in the figure; there is also a row of triangular spots upon each side of the body, in contact with the abdomen: abdomen and under surface of tail straw color, presenting numerous spots of black.

Dimensions.—Length of head 2 inches, 3 lines (Fr.); breadth posteriorly, 2 inches; length of tail, 5 inches 3 lines; length of body, 2 feet 8½ inches (Fr.); greatest circumference of body, 8 inches 3 lines.

Abdominal scuta 128; Subcaudal 27, two of which are single, (the second and third from the anus,) the rest bifid.

Habitat.—Liberia, Western Africa. Specimen in the Museum of the Academy.

General Observations.—The animal from which the above description is taken, was presented to the Academy of Natural Sciences by Dr. Thomas S. Savage, Colonial Physician, and one of our Correspondents. The drawing was taken from a young animal, eighteen inches in length; the coloration, however, does not vary materially from that of the older specimen, except that the general tints are lighter, and in the points indicated. It has no resemblance to the Vipera cornuta, Auct., a beautiful figure of which is given in Dr. Andrew Smith's Illustrations of the Zoology of Southern Africa, plate 32.*

There can be no doubt, we think, that this is the animal figured by Shaw,

* See Schlegel, Physiognomies des Serpens, tom. ii. p. 583, note.

and described under the name of Coluber nasicornis. The figure of Shaw does not represent the triangular spots at the extremities and sides of the quadrangular bars upon the back, and the form of the head is altogether different; he states, however, that "along the whole length of the back, is placed a series of yellowish brown oblong spots or marks, each of which is imbedded in a patch of black," which, although a somewhat loose description, evidently refers to the species under consideration. Many of the drawings in his Zoology, it is well known, are exceedingly incorrect. It is remarkable that an animal so hideous, and provided with weapons so destructive, should possess the beautiful robe which it presents to the eye. Why this animal, and others among the reptilia, should be thus endowed, is a mystery; for, judging from its formidable head, and powerful fangs, no reptile, not even the Crotalus, or Trigonocephalus, is so deadly. It is also remarkable that animals of this kind should exist in tropical countries associated with the most beautiful of Flora's productions.

"Malheur au voyageur, (observes Mons. Spix,) qui ravi de toutes les richesses, qu'une nature enchanteresse déploie autour de lui, se promène dans ces forêts délicieuses, peuplées d'une variété immense d'arbres gigantesques, foule à ses pieds des tapis de verdure, enrichis de mille fleurs odoriférantes, qui parfument l'air et enivrent ses sens; qui élevant sa vue vers la voûte céleste, la porte sur des oiseaux d'un plumage magnifique dont il admire le singulier ramage; qui ailleurs remarque des essaims d'insectes cent fois variés, se confondant dans leur vol folâtre, et offrent á ses yeux déjà frappés d'étonnement, un spectacle nouveau; les rayons du soleil, en les faisant resembler à autant de pierres précieuses, rélevent encore l'éclat de leurs couleurs déjà si multipliées;—malheur, dis-je, à l'impatient et zélé naturaliste, qui traverse des mers pour enrichir les sciences de ses observations, lorsqu'assis à l'ombre d'un arbre, aussi ancien que les siecles, couronné de fleurs magnifiques, telles que Paullinies, Orchides, Gouets, Bromelies et maintes autres, sert de tuteur à des lianes communes à divers arbres, qu'elles semblent réunir par leur formation de berceaux, servent d'échelles pour monter à leur sommet élevé, et qui nourrissent en même temps sur leurs troncs un nombre infini de végétaux, il étend sa main pour cueillir une fleur qui se trouve prés d'elle, se sent tout à coup atteint de la morsure d'un Trigonocéphale qu'il à derangé dans sa quiétude;—un poison mortel coule dans ses veines, décompose son sang et son être, et le fait périr d'une mort prématurée, qu'il trouve à trois mille lieues de sa patrie en récompense de son zéle.*"

An account of the habits of this, as well as those of other animals recently presented by him to the Academy, has been promised by Dr. Savage.

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* Animalia nova, sive Serpentium Brasiliensium species novæ; par Jean de Spix, p. 51.

The Committee on Dr. Leidy's description of a new genus and species of Fossil Ruminants, reported in favor of publication :

On a new genus and species of fossil Ruminantia: Poëbrotherium *Wilsoni.*

By Joseph Leidy, M. D.

Indirectly, through Mr. J. S. Philips and the influence of Dr. S. G. Morton, the Academy has become the depository of a valuable and unique fossil, received through Dr. S. D. Culbertson, of Chambersburg, Pa., from Mr. Joseph Culbertson.

As first received, it consisted of a mass of argillaceous limestone, having one side of a cranium of an animal exposed to view, which, by the patience of Dr. T. B. Wilson, was relieved of its matrix, and the lower extremity of the humerus, and the upper extremity of the ulna and the radius of the right leg were also disclosed.

The top or vault above the orbits and posterior part of the cranium are wanting, as are also the ossa nasi, ossa intermaxillaria, the part of the os maxillare inferius just anterior to the commencement of the symphysis, and the zygoma of the left side, but sufficient is left to charcterize it as a remarkable genus of *Ruminantia*, very different from any that has been heretofore described.

The cranium belonged to a full grown or adult animal, but not an old one, as is indicated by the teeth.

In the upper jaw are seven molars, differing in this respect from any ruminant known, living or fossil. The posterior three molars, usually called true, present nothing very peculiar in their conformation. They are not so square as in *Cervus*, but are more like those of *Ovis*, being much broader than wide, so that they have a compressed appearance. The four crescents upon the crowns are quite simple. Externally these teeth present two and nearly plane surfaces, separated by an abrupt, salient, longitudinal ridge on a line with the notch separating the anterior and posterior pair of columns. Each of these surfaces has a longitudinal rounded ridge, more prominent upon the anterior than the posterior one, but neither so salient as the first. The antero-external border is also elevated or prominent, so that each of these teeth presents externally four longitudinal ridges. As is usual, these teeth are obliquely situated in the jaw, and the anterior part of one folds over externally or overlaps the posterior part of the one preceding it.

The anterior four molars or premolars are not more than half the length of the true molars, and differ among themselves so as to render it necessary to examine them separately. The posterior or fourth premolar has more the characteristics of a true molar, and it would probably not be wrong to consider it as an additional true molar. The crown presents four crescents, which are thicker than in the true molars, and the anterior and posterior pair are separated by a comparatively deeper notch. Externally the tooth

has four ridges corresponding to those of the true molars. The third premolar, or the one immediately preceding the last, has upon its crown a posterior pair of thick crescents, and an anterior cusp which has the appearance of being formed by the blending together of a pair of crescents. Externally it is trilobed, the lobes being separated by two concave depressions. It is shorter but broader than the last. The second premolar is compressed, faintly trilobed, and presents an elongated trenchant crown. The first premolar is the most remarkable characteristic of this cranium. It is separated from the others by a concave notch of .333 of an inch, and is on a line with the anterior mental foramen. It is implanted in the jaw by two fangs, which are divergent and placed one anterior to the other. The body is nearly as broad as the second premolar and is of a compressed pyramidal form, and the crown has a trenchant edge, the posterior and anterior part of which form an angle about its centre.

In the lower jaw, in the specimen, are six inferior molars in a closed row commencing .25 of an inch anterior to the corresponding six molars above, and continuing as far back as the latter. Besides these, and separated from them by a concave descending notch of .45 of an inch, just anterior to the anterior mental foramen, or .15 of an inch anterior to the commencement of the sympyhsis posteriorly, is one half of an alveolus for an additional or seventh molar, which, when the specimen was first received, contained a portion of a fang, since mislaid. This additional molar in the lower jaw is possessed by only one other known genus of *Ruminantia;* the *Dorcatherium*, of Kaup.

The crowns of the inferior molars are enveloped in the matrix in such a manner that they cannot be exposed without endangering the specimen. Externally the three true molars present their columns as sharply triangular prisms, as in *Ovis*, &c., and have no intervening points or cones, as in *Cervus*, *Dorcatherium*, *&c.*

The fourth premolar is tri-lobed externally, each lobe presenting a cusp towards the crown. The third and second are compressed, and the latter, I can perceive, has a trenchant crown.

The position of the molars, though resembling that of *Dorcatherium*, considerably more than that of any other genus of *Ruminantia*, differs materially from it, for while the teeth reach to the symphysis in the latter, in the former they even extend anteriorly to its commencement.

From the foregoing description of the teeth, it will be perceived, that in the possession of a seventh molar in the upper jaw, in the position of the molars, and in several other minor peculiarities, this genus differs from all others heretofore known, and is well characterized, and I therefore propose for it the name of "Poëbrotherium."*

The base of the maxilla inferius presents a double curve, and has its anterior, central, and posterior parts very nearly on the same line, so as to give the lower part of the face an unusual degree of squareness. The angle is prolonged upwards and backwards into a well marked and hook-like pro-

* *πόα herba*, *βρόω pasco*, *θήρ fera.*

cess similar to that of many *Rodentia* and *Carnivora*, and exists in no other *Ruminantia* excepting the *Camelidæ*. Just above the base, where it curves downwards and backwards, is a short crescentic depression made by the attachment of the masseter muscle. The processus coronoideus has been proportionately about as long as that of the *Ovis aries*. The depression between the processus coronoideus and condyloideus upon the outer face of the ramus is comparatively deep, resembling more that of a carniverous than a ruminating animal. The anterior mental foramen is placed immediately posterior to the commencement of the symphisis. About one inch and a half to posterior to the latter foramen, on a line with the separation of the first true and last premolar, is another and smaller foramen, which is common to most Ruminants.

The ossa maxillaria superiora, below the situation of the ossa nasi, are very much depressed, so as to make this part of the face extremely narrow. Just anterior to this depression is a prominence resembling that produced by the root of the canine tooth of the *Moschus*, although I doubt very much whether this animal had such large canine teeth, if it had any at all, because of the very great narrowness of this part of the face, and the very advanced position of the first premolar.

The infra orbitar foramen is further back or more approached to the orbit than usual, being situated on a line above the fourth premolar.

The anterior part of the orbit is elevated so that the latter looks directly outwards.

The body of the os malæ is narrowed and elongated backwards. The zygoma proper, or that which is posterior to the frontal process of the os malæ, is short.

The meatus auditorius externus borders immediately upon the glenoid cavity. The tympanic bone is inflated and comparatively larger than in *Bos bovis*, *Cervus rufescens*, or any other Ruminant with which I am acquainted. Externally it projects beyond the face of the lower jaw and the meatus externus. Viewed posteriorly, it presents two parallel ampullæ, united anteriorly, and separated posteriorly by a notch, which terminates in a deep depression below for accommodating the processus styloideus.

The portion of os humeri, consisting of the articular surface for the elbow and posterior sigmoid cavity, presents nothing peculiar.

The ulna, where it is broken off about three-fourths of an inch below the articulation, has nearly the same thickness as the radius, and probably has been proportionately larger than usual.

These bones belonged to an animal rather less in size than the *Dorcatherium*.

The species I have designated *Wilsoni*, in honor of Dr. Thomas B. Wilson, the munificent patron of the Natural Sciences.

Probable habit of the animal.—From the evidences of considerable muscular strength in the posterior part of the inferior maxilla and the trenchant crowns of the anterior premolars, it might be supposed that the animal was adapted to eating flesh as part of its food, as was thought by Cuvier to have been probably the case with the *Anoplotherium gracile*, a pachydermous ani-

mal having very similar characters, but I should think its general structure would entirely preclude the idea of its having been able to catch living animal prey, and doubt very much whether its food could have been other than vegetable. The anterior trenchant molars were more probably intended for cutting branches and twigs of bushes, or tough grasses, which afterward underwent a finer trituration with the true molars.

The position which the genus should occupy.—*Poëbrotherium* in its dentition approaches the *Ruminantia* to the *Pachydermata*, for in the number of the molar teeth and the trenchant nature of the anterior premolars it is closely allied to the Xiphodont *Anoplotherium*, while in the true molars it is characteristically Ruminant, and its position would, therefore, probably stand thus: *Dorcatherium*, *Poëbrotherium*, *Anoplotherium*.

Measurements of the head.*

	In.
Meatus auditorius externus to infra orbitar foramen	3.1
From point of hook-like process of inferior maxilla to anterior mental foramen	4.35
Greatest width of orbit	1.15
Narrowest part of face, below ossa nasi	.2
Width at the corono-condyloid depressions of inferior maxilla	1.6
Width at the coronoid processes	2.
Greatest width at the ossa tympani	2.1
Distance between ossa tympani	.375
Width of os tympanum	.85
Length of row formed by the posterior six superior molars	2.5
Notch between the first and second superior premolars	.333
Length of row formed by the posterior six inferior molars	7.
Notch between the first and second inferior premolar	.45

Measurements of superior molar teeth.

	Length.	Breadth.	Thickness.
7th molar	.375	.6	.2
6th "	.4	.55	.25
5th "	.333	.45	.275
4th "	.2	.375	.25
3rd "	.15	.4	.1
2nd "	.1	.35	.1
1st "	.15	.3	.075

Measurements of inferior molar teeth.

	Length.	Breadth.
7th molar	.3	.35
6th "	.3	.5
5th "	.25	.4
4th "	.15	.45
3rd "	.1	.35
2nd "	.1	.35

* The measurements are taken in English inches and parts of do.

Measurements from bones of fore-leg.

Transverse diameter of lower articular surface of os humeri . . .75
Antero-posterior diameter in depressed portion of same 45
Length of olecranon above the lowest part of the articular surface of the elbow 95

Explanation of the figures.

No. 1. Cranium of Poëbrotherium Wilsoni.
2. View of the crowns of the superior molar teeth of the right side.
3. Posterior view of the tympanic bone.
4. Fragments of os humeri, ulna, and radius.
No. 5. Section of articular cartilage, from the articular surface of the head of the tibia of Megalonyx laqueatus, highly magnified, as described on page 313.
6. Portion of the crown taken from a fragment of a fossil horse tooth; see page 328.

The Monthly Report of the Corresponding Secretary was read and adopted.

ELECTION.

The Hon. George M. Dallas, Vice President of the United States, John H. B. McClellan, M. D., and John L. Ludlow, M. D., of Philadelphia, were elected *Members*.

Stated Meeting, December 7, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Pecten encyclicus, Rav., from South Carolina. Presented by Dr. Ravenel, of South Carolina, through Dr. Morton.

Two Trilobites, and a cast of a third, from the vicinity of Cincinnati, Ohio. Presented by Dr. Dickeson.

Several specimens of Diallage, from Marple, Del. Co., Penn. From Dr. George Smith, through Mr. Cassin.

DONATIONS TO LIBRARY.

Handbuch der Entomologie von Hermann Burmeister. Vol. 5. 8vo. Berlin, 1847. From the Author, in exchange.

Disquisitio anatomica, nervum trigeminum partemque cephalicum nervi sympathetici Gadi lotæ Linn. cum nervis iisdem apud hominem et Mammalia comparans, &c. Auctor Eberhardus Julius Bonsdorff. From Dr. Morton.

Journal of the Academy of Natural Sciences of Philadelphia. New series. Vol. 1. Part 1. 4to. Philada., 1847. From the Publication Committee.

Dr. Wilson deposited the following:

A list of the Genera of Birds, with their synonyma, and an indication of the typical species of each genus. By Geo. Robt. Gray. 2d edition. 8vo. London, 1841.

Voyage de la Corvette l'Astrolabe pendant les années 1826–'29, sous le commandment de M. D'Urville. Text. 1 vol. 4to., and 11 vols. 8vo. Plates, 8 vols. folio.

Voyage en Islande et an Groënland executé pendant les années 1835 and '36, sur la Corvette La Recherche; publié par ordre du roi sous la direction de M. Paul Gaimard. Text, 9 vols. 8vo. Plates, 3 vol. folio, et 1 vol. 8vo.

The Zoology of the voyage of H. M. S. Erebus and Terror, under the command of Capt. Sir James Clark Ross, R. N., during the years 1839 to '43; edited by John Richardson, M. D., and J. Ed. Gray, Esq. Nos. 6—16. 4to.

Saggio orittografico sulla classe dei Gasterpodi fossili dei Terreni Terziarii del Piemote di Luigi Bellardi e Giovanni Michellotti. 4to. Torino, 1840.

Description des Cancellaires fossiles der Terrains Tertiaires du Piemont, par Louis Bellardi. 4to. Turin, 1841.

Dr. Griffith deposited the following:

Tableaux des corps organisés fsssiles précédé de remarques sur leur petrification: par M. Defrance. 8vo. Paris, 1824.

A treatise on the management of Bees. By Thomas Wildmann. 8vo. London, 1778.

Harper's Family Library. No. LXI. The History of Nubia and Abyssinia, by the Rev. Michael Russel. 12mo. New York, 1836.

Dr. Dickeson exhibited an Indian axe, of large size, which had been found in New Jersey.

The Publication Committee announced that the first number of the New Series of the Journal of the Academy was published, and ready for distribution to subscribers.

Stated Meeting, Dec., 14, 1847.

Mr. Vaux in the Chair.

Mr. Cassin read a paper, describing "Two species of Buceros, probably new, with a notice of the Buceros elatus, Temm.;" which was referred to a committee composed of Dr. Wilson, Mr. Harris, and Mr. Gambel.

Dr. Leidy made some observations upon fossil remains of the horse in America, in connection with a memoir on the subject, read by him some time previously, and published in the last number of the Proceedings. He stated that in the 35th vol. of Silliman's Journal, p. 201, is an extract from a letter from W. M. Carpenter to Benj. Silliman, describing a fossil horse tooth found in Louisiana, associated with Mastodon, &c., which, from the figures and measurements accompanying the description, he referred to his species Equus Americanus. He further remarked that Mr. T. A. Conrad had informed him that Mr. T. Nuttall had found teeth of this same species on the Neuse river, N. C. Dr. L. also exhibited a fragment of a superior molar of the left side, from the collection of Dr. Dickeson, which, from the greater delicacy and degree of folding of the enamel upon the crown, (see fig. 6 in the plate,) he thinks probably belonged to a third American species. The depth of the central enamel folds is preserved in the fragment, and is 2 inches, 3 lines.

Dr. McEuen exhibited specimens of clarified ginseng root, (Panax quinquefolium,) which had been perforated by an insect; and desired information on the subject.

Stated Meeting, December 21, 1847.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Three hundred and forty-two crania of Birds, comprising 222 species; also three crania of Mammalia. Presented by Dr. Wilson.

Mounted skeleton of Boa constrictor. Presented by Messrs. Watson, Vaux, Ashmead, Lambert, Percival and Leidy.

Skeletons of Didelphis virginiana, aud Mus musculus. Presented by Mr. Wm. G. Wistar.

Two species of Trilobites. Presented by Mr. Samuel Ashmead.

DONATIONS TO LIBRARY.

Archiv. für Naturgeschichte geründet von A. F. A. Wiegmann, herausgegeben von Dr. W. F. Erichson. No. 6, 1846. No. 2, 1847. Deposited by Dr. Wilson.

Oken's Isis, No. 7, for 1847. From the same.

Verzeichniss der doubletten des Zoologischen Museum der Königl. Universitat zu Berlin nebst Beschreibung veiler bischer unbekanntner arten von Säugethieren, Vögeln, Amphibien und Fischen herausgegeben von Dr. H. Lichtenstein. 4to. Berlin, 1823. From the same.

The Literary Record and Journal of the Linnean Association of Pennsylvania College. Vol. 4. No. 2. From the Association.

American Journal of Agriculture and Science; conducted by Dr. Emmons and A. Osburn, Esq., Nov. 1847. From the Editors.

Mr. Cassin read a paper entitled, "Descriptions of three species of the genus Icterus, presumed to be new; specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia." Referred to Messrs. Wilson, Harris, and Gambel.

Dr. Morton made some remarks on an Indian cranium of singular form found near Richmond, on the Delaware; and also on a Chenook infant mummy. The cranium is interesting on account of its locality, and from its having the atlas vertebra continuous with the occipital bone. No trace of suture is visible; although the skull has pertained to an individual not exceeding 25 years of age.

The Chenook mummy is from the Straits of Fuca; the head is artificially compressed in a very remarkable manner, according to the custom of these people.

Annual Meeting, Dec. 28, 1847.

Vice President Morton in the Chair.

The Committee on Mr. Cassin's papers, describing new species of Buceros and Icterus, reported in favour of publication:

Description of a new Buceros, and a notice of the Buceros elatus, Temm., both of which are in the collection of the Academy of Natural Sciences of Philadelphia.

By John Cassin.

Buceros *albo-cristatus*, (nobis.)—Capite habente cristam, erectam, albamque; plumis totis subtiliter nigro terminatis; multis etiam ad basem nigris hoc colore sursum per scapum extendente.

Rostro nigro; macula magna, flavido-alba, ab basi ad mandibulæ superioris medium extendente.

Corpore toto, alis, caudaque nigris, nitore nonnullo virescente.

Remigibus, primariis et secundariis, maculis apicalibus, parvis et albis; primariorum nonnullis maculis parvis et albis pogonio externo.

Cauda longissima, gradata; duabus rectricibus intermediis cæteris longioribus pollicibus nonnullis; totis margine apicali large albo terminatis.

Long. tot. (exuviæ) ab rostri apice usque ad caudæ finem, 30 poll.; caudæ 17 poll.

Hab. In Africa occidentali.

Head with an erect crest, which is white, every feather minutely tipped with black; many feathers of the crest are also black at their bases, with colour extending upwards along their shafts.

Bill black, with a large yellowish white spot extending from the base to the middle of the upper mandible.

Whole of the body, wings, and tail black, with a green lustre.

Primary and secondary quills with small white spots at their tips; several of the primaries have also small white spots on their outer webs.

Tail very long, graduated, the two middle feathers exceeding all the others by several inches; all the tail feathers largely tipped with white.

Total length (of skin) from tip of bill to end of tail, 2 feet 6 inches, of which the tail alone measures 17 inches.

Hab. Western Africa.

The specimen above described, I received several years since from Robert MacDowell, M. D., surgeon, attached to the colonial government of Sierra Leone, and an enthusiastic naturalist, who obtained it on the banks of the St. Paul's river.

This species resembles no other which I have seen, or of which I can find a description, and may at once be recognized by its white erect crest and long tail.

For the same gentleman I have received several other specimens of this genus, also from Western Africa, one of which is the Buceros elatus, Temm., of which a figure of the head and bill is given in Pl. Col., 521, and another may be the female of the same species; as such, however, I do not feel warranted in describing it at present, the bills of the two specimens differing more materially than I have been accustomed to seeing in the same species.

Two crania of the Buceros elatus are in the collection of Dr. Morton, one of which is undoubtedly from Western Africa. As this species appears to be known only from the figure of the cranium and beak above alluded to, I take the liberty of giving a description of the specimen which I suppose to be the male.

Buceros elatus, Temm. (Pl. Col., 521, accuratissima figura cranii et rostri) (♂ juv.?) Corpore et alis totis nigris, subtus pallidioribus, parvo aut nullo virore metallico.

Occipite subcristato, plumis latis, laxis et nigris.

Rectricibus duabus intermediis nigris; omnibus cæteris toto albis.

Long. tot. exuviæ, ab rostri apice usque ad caudæ finem 36 pollices.

Hab. In Africa occidentali.

Body and wings entirely black, paler beneath, with little or no metallic lustre.

Occiput with a sub-crest of broad lax feathers, which are black.

Two middle tail feathers black, all the others entirely white.

Total length (of skin) from tip of bill to end of tail 3 feet.

Hab. Western Africa.

The supposed female is very similar in the general colouring of the body, wings and tail, with the whole head and neck rufous chestnut, which colour extends to the upper part of the breast.

Descriptions of three new species of the genus Icterus (Briss.;) specimens of which are in the Museum of the Academy of Natural Sciences of Philadelphia.

By John Cassin.

Icterus *maculi-alatus, nobis.*—Capite toto, dorso, alis et cauda, nigris; hoc colore ad pectus, ut in cæteris hujus generis speciebus, extendente.

Scapularibus, alarum tectricibus minoribus, et corpore toto subtus a pectore ad caudam, flavis; hoc colore in pectore et scapularibus intensiore.

Alarum tectricibus majoribus maculis apicalibus, albis, subrotundis, fasciam in alam conspicuam facientibus.

Remigibus primariis, pogonio externo, prope apicem, attenuatis, et ubi coarctantur, extus albo-marginatis.

Long. tot. exuviæ, ab rostri apice usque ad finem caudæ 7½ poll., alæ 3.8-10, caudæ 3.4-10 poll.

Hab. Mexico; prope Vera Cruz.

Whole head, back, wings and tail black; this color extending to the breast, as in other species of this genus.

Shoulders, lesser wing coverts, and entire under parts of the body, from the breast to the tail, yellow, darkest on the breast and shoulders.

Greater wing coverts with rounded white spots at their tips, forming a conspicuous bar on the wing.

External webs of primaries attenuated near their tips, and at the point of attenuation edged (externally) with white.

Total length of skin from tip of bill to end of tail 7½ inches, wing 8.8-10, tail 3.4-10 inches.

Hab. Mexico, near Vera Cruz.

This species resembles no other which I have met with, and may readily be recognized by its conspicuous and peculiar white bar on the wing, formed by large white spots at the tips of the greater coverts. Upon examination it will be found that these spots are on the outer webs only.

I have seen one specimen only of this species, which belonged to the Rivoli collection.

Icterus *auricapillus, nobis.*—Capite supra nitide aureo flavo.

Persona vittam frontis formante, oculos in totum complectente, ad pectus excurrente, nigra. Dorso, alis et cauda eodem colore.

Scapularibus, uropygio, caudæ tectricibus superioribus, et corpore toto subtus (a pectore) flavis.

Alis et corporis partibus cæteris prorsus sine albo.

Long. tot. exuviæ, ab rostri apice usque ad finem caudæ 7 poll., alæ 3.6-10, caudæ 3½ poll.

Hab. Mexico et America meridionali.

Head above bright golden yellow.

Mask forming a frontal band, fully including the eyes and extending to the breast, black, which is also the color of the back, wings and tail.

Shoulders, rump, upper tail coverts, and entire under surface of the body, (from the breast,) yellow.

No white on the wings or on any other part of the body.

In a specimen which is probably that of a young bird, the black of the chin is mixed with yellow; no white whatever on any part of the plumage.

Total length from tip of bill to end of tail, about 7 inches, wing 3.6-10, tail $3\frac{1}{2}$ inches.

Hab. Mexico and South America.

Resembles Icterus cucullatus, Swainson, more than any other species known to me, but I. cucullatus is very conspicuously marked with white on the wings, which is not the case in the species now described.

The I. cucullatus has black shoulders, its bill also is longer and more slender, and in other respects it is entirely different.

After a careful examination, with the advantage of the Academy's large collection of Icteri, I am rather surprised that I can find no description which will apply to this species, although I have seen it occasionally in collections for the last ten years.

Of the four specimens now in the collection of the Academy, two from the Rivoli collection are labelled Mexico, one also from that collection is without label of any kind, and the fourth was received by me from Brazil. I have also seen specimens said to be from the island of Trinidad.

ICTERUS *Giraudii, nobis.*—Adultus. Persona lata, vittam frontis formante, oculos in totum complectente, ad pectus excurrente, læte nigra.

Alis et cauda nigris, sine maculis albis.

Corpore toto supra, subtus a pectore, capite supra, et scapularibus nitidé citrino-flavis.

Plumis totis sine albo.

Long. tot. exuviæ, ab rostri apice usque ad finem caudæ 8 poll., alæ 4.1-10, caudæ 4 poll.

Juvenis, plumarum flavo saturate, tincto cum aurantio sordide aut cambogio.

Alis virescenti-marginatis.

Juvenissimus, plumarum flavo pallido, nigro in gulam inconspicuo.

Hab. Prope Bogota, in Nova Grenada.

Adult. Mask broad, forming a frontal band, fully including the eyes, and extending to the breast, fine black.

Wings and tail black, with no white marks whatever.

Head above, entire body above and below from the breast, and shoulders bright lemon yellow, no white on any part of the plumage.

Young. Yellow, the whole plumage tinged with dull orange or gamboge color. Wings edged with greenish.

Very young. Yellow parts of plumage paler, in some parts nearly white, black on the throat scarcely apparent.

Total length, skin of adult, from tip of bill to end of tail about 8 inches, wing 4.1-10, tail 4 inches.

Hab. Bogota in New Grenada.

Resembles Icterus xanthornus, (Linn.,) more than any other species with which I am acquainted or have found described, but is larger, and has the mask much broader.

In I. xanthornus, the gular black scarcely exceeds the width of the under mandible, but in the species now described, it fully includes the eyes and the whole base of the bill. I. xanthornus has also white markings on the wings, which is not the case in any stage of plumage represented by the five specimens now described.

I have named this beautiful species in honor of Jacob P. Girard, Jr., Esq., of the city of New York, author of "The Birds of Long Island," and other important contributions to American Ornithology.

The following Reports were then read, and ordered to be published:

REPORT

OF THE RECORDING SECRETARY

For the years 1846 *and* 1847.

It has now been two years since the last annual Report of the Recording Secretary was laid before the Academy. This paper will therefore include a brief statement of the Transactions of the Society for the two years past.

During the year 1846, twenty-six Correspondents and five Members were elected. Twenty communications, written by the following named gentlemen, have been published in the Proceedings, viz.: One paper by Mr. T. A. Conrad, entitled, "Descriptions of new species of Fossil and recent Shells and Corals;" one by Mr. Locke, "On an Asterias from the Blue Limestone of Cincinnati;" one by Mr. Edward Harris, "On the difference of level between the waters of the Gulf of Mexico and those of the Atlantic Ocean," one by Robert W. Gibbes, M. D., of Columbia, S. C., "On the Fossil Squalidæ of the United States;" one by Mr. William Gambel, being "Remarks on the Birds observed in Upper California;" two by Samuel Geo. Morton, M. D., viz. a "Description of two new species of Fossil Echinodermata, from the Eocene of the United States," and "A description of two living Hybrid Fowls, between Gallus and Numida;" two by Edward Hallowell, M. D., viz., "Description of a new species of Bat, from Western Africa," and "On the Anatomy of Harpyia destructor, Cuv., or Harpy Eagle of South America;" one by F. E. Melsheimer, M. D., being "Descriptions of new species of Coleoptera of the United States;" one by Mr. John S.

Phillips, being "Descriptions of a new freshwater shell, and observations on Glandina obtusa, Pfeif;" five by Joseph Leidy, M. D., viz ;, "Remarks upon the Anatomy of the Abdominal Viscera of the Sloth, Bradypus tridactylus, Linn.;" "On the Anatomy of Spectrum femoratum, Say," "Description of a new genus and species of Entozoa," "On the mechanism which closes the wings of the genus Locusta," and "On the situation of the olfactory sense in the terrestrial tribe of the Gasteropodous Mollusca;" two by Prof. S. S. Haldeman, viz., "Description of Unio Abacoides, a new species," and "On several new genera and species of Insects;" one by Richard Owen, F. R. S., &c., being "Observations on certain Fossils from the Academy of Natural Sciences, of Philadelphia; and one by Mr. John Cassin, viz., "Note on an instinct probably possessed by the Herons, (ARDEA, Linn.)"

The following amendments to the By-Laws have been made during the same year, (1846) viz:

Chap. V. Art. VI. to commence thus: "The duty of the Librarian shall be to attend daily at the Hall, from 11 o'clock, A. M. to 2½ P. M., &c.;" and to add to the same chapter,

"Art. VIII. The chairman of the Curators shall attend daily at the Hall, from 2½ o'clock, P. M., until sunset, to perform the duties of his office."

From the commencement of the present year (1847) to the present time, there have been elected thirteen Correspondents and nineteen Members.

In the first five numbers of this year's "Proceedings" have been published thirteen valuable original written communications, as follows: one by Prof. S. S. Haldeman, being "Descriptions of several new species and one new genus of Insects;" one by Mr. M. Tuomey, State Geologist of South Carolina, being a "Notice of the discovery of a cranium of the ZEUGLODON;" one by Mr. John Cassin, being a "Description of a new rapacious bird in the Museum of the Academy of Natural Sciences, of Philadelphia;" three by Joseph Leidy, M. D., viz., "Description and Anatomy of a new and curious subgenus of Planaria," "Description of new species of Planaria," "On the fossil Horse of America;" one by Lieut. Abert, U. S. A., being a "Description of Ortyx Squamata;" one by Major George A. M'Call, being a "Description of a supposed new species of Columba inhabiting Mexico, with some account of the habits of the Geococcyx viaticus, Wagler;" one by Robert W. Gibbes, M. D., of Columbia, S. C., being a "Description of a new species of Squalides from the Tertiary Beds of South Carolina;" one by Dr. J. W. Dawson, of Pictou, Nova Scotia. "On the Gypsum of Nova Scotia;" one by Edward Hallowell, M. D., being a "Description of a new species of Coluber inhabiting the United States;" one by Mr. T. A. Conrad, being "Observations on the Eocene Formations and descriptions of one hundred and five new fossils of that period, from the vicinity of Vicksburg, Mississippi, with an appendix." In addition to these communications, there are several papers in progress of publication for the November and December number of this year. A number of very

valuable and interesting verbal communications by different members of the Academy, have also been published in the Proceedings.

The following alterations in the By-Laws have been made, viz.

Art. VII. of Chap. VII. to read as follows: "Members may borrow books, the property of the Academy, from the Librarian, on signing a promissory note for fifty dollars, which shall become void on the book being returned."

Art. VIII. of same Chapter: "But no works shall be loaned from the Hall on any account whatever, except those marked with an asterisk (thus*) in the catalogue, unless by an affirmative ballot vote of three fourths of the members present when the application is made; and in case of deposited books, the written consent of the depositor having been previously obtained, the name of the borrower and the title of the book to be recorded on the Minutes, and security given for its safe return, by note or otherwise, for the full value thereof, according to the estimate of the Librarian or Library Committee."

Since the last Annual Report, the affairs of the Academy have been in an exceedingly flourishing condition. An addition of thirty feet has been made to the building, and the sessions of the Academy are held in the Library, a comfortable apartment in the basement of this addition—a great improvement over the immense room in which its meetings were formerly held. During the past year, the lecture room has been altered and adapted to the purposes of the Museum—an alteration greatly needed in consequence of the immense increase in the different departments through the munificent donations and deposits lately received by this Institution. A report on the state of these departments belongs more properly to other officers of the Society; it will therefore be sufficient here simply to state, that during the period embraced by this report, a greater impetus has been given to the Academy than it has received at any previous period of its existence. During the last two years, thanks to the noble liberality of a generous member, and to the exertions of others, it has made such rapid strides that, in the language of one of our Vice Presidents, "an hundred years of ordinary prosperity could not have realized so much." It has completely thrown all lethargy aside; and, fully aroused and energetic, is now performing its full quota towards the cause of scientific discovery and research.

All of which is respectfully submitted by

JOHN LAMBERT,
Recording Secretary.

December 28, 1847.

REPORT

OF THE LIBRARIAN

For 1847.

The Librarian is enabled on the present occasion to exhibit to the Society a highly flattering statement of the existing condition of the Library, and to congratulate the members on its rapid increase and the great additional value which it has acquired during the year, and the peculiarly auspicious circumstances under which it has been placed since the last Annual Meeting.

At that time, the Library occupied ranges of cases on either side of the large Saloon or Hall in common with the collections of the Society. These accommodations were imperfectly adapted, either for a proper display of the Books, or for such an arrangement of them as would afford easy and convenient reference. Many of the cases were likewise greatly crowded, their contents in consequence abused and injured, and in several instances it was necessary to distribute works belonging to a particular department into cases at a considerable distance from each other. In addition, the want of proper daily ventilation of the Hall in the summer season, and of regular warmth during the winter, and the unavoidable exclusion of the members from the Library on those days when the Hall was open to the public, were all serious obstacles to the prosecution of study, on the very spot where, on the contrary, every facility and advantage should be afforded. For the latter reasons especially, the necessity of a separation of the Library from the Museum had been long felt and acknowledged. Happily, through the spontaneous liberality of an individual member, too favorably known among us to require to be named, the Society has been enabled to remove all these objections and disadvantages, and I have the pleasure this evening to present this report in a new apartment, expressly designed for the purpose of a Library and Meeting room, and possessing every convenience that could be desired.

The removal of the books from the Hall to this room was commenced in the latter part of April, and their arrangement in the cases was completed about the close of the following month. In the arrangement, the principal object has been to facilitate access to those works likely to be in most request, and accordingly the different departments of Natural History occupy cases on the floor of the Library, commencing with general Natural History, and followed by Botany, Conchology, Geology, Ornithology, &c. The remaining cases on the floor contain Anatomy and Physiology, the Journals, and the large and valuable collection of works on Antiquities and the Fine Arts. On the gallery, are the various Dictionaries of Arts and Sciences and Encyclopædias, Physical Science and Chemistry, History, Voyages and Travels, Biography, &c.

By a late regulation of the Society, the Librarian is required to be in attendance at the Library daily during a part of the forenoon, and in the afternoon his place is supplied by the Chairman of the Curators.

From these measures the happiest effects have already resulted, and have fully equalled expectation. Beside the greater protection necessarily afforded to the Library by a constant and daily supervision of it, they have tended, per-

haps more than any others since the origin of the Institution, to produce a better knowledge, and more correct appreciation of the truly legitimate objects of the latter, to invite and encourage study and research, and, not the least of all, to bring together, and to create more frequent intercourse between, the members of the Society.

The number of additions of all descriptions to the Library in the various departments, during the present year, is exhibited in the following table :—

	Vols.	Parts. Nos. Livs. &c.	Pamphlets.		Vols.	Parts. Nos. Livs. &c.	Pamphlets.
General Nat. History and Zoology,	184	103	3	Brought over.	453	250	73
Botany,	21	28	8	Agriculture,	1		3
Conchology,	41	13	6	Voyages and Travels,	34		1
Geology,	60	38	25	Languages,	1		1
Ornithology,	79	55	9	Bibliography,	17		
Herpetology,	12			Education,	2		
Ichthyology,	2			Geography,	11		
Entomology,	6	12	1	Journals, Annals, Trans. & Proceed. of Soc., Memoirs, &c.,	97	109	
Mineralogy,	2						
Anatomy and Physiology,	11		9	Biography,	1		
				History,	2		
Helminthology,	1			Useful Arts,	2		
Physical Science and Chemistry,	31	1	8	Antiquities,	8		
				Addresses, Reports, &c.,	1		4
Medicine,	3		4				
Carried over,	453	250	73	Totals,	630	359	82

Making a total of 1072 additions of all descriptions to the Library in 1847.

Of the whole number, there were presented by authors 54 ; by editors 31 ; by members, correspondents and others 119; by Societies 56 ; obtained by purchase or exchange 25 ; deposited by Dr. Thomas B. Wilson 586 ; by Dr. R. E. Griffith 163 ; and by J. Price Wetherill, Esq., 96. Two charts were derived from the U. S. Treasury Department ; one from Mr. R. C. Taylor, and one from Dr. Wilson.

The above statements show a greater increase in the Library during the last twelve months, than has occurred at any period since that in which it received the noble contributions of its early benefactor William Maclure. It will be seen also how very large a proportion of the whole number of additions has been derived from our fellow member Dr. Wilson. From a reluctance to occupy the time of the Society too long with this report, I refrain from a recapitulation of the titles of the numerous splendid works deposited by this gentleman, and must content myself therefore with referring those, who may be desirous of forming some estimate of their great value, both in actual cost, and as works of Science, to the printed Proceedings, in which they have been already fully announced. Nearly all of them have been imported from abroad expressly

for this Library, and have been placed here by him with the sole object and desire to foster and encourage a spirit of investigation, especially in the departments of Ornithology, Geology and Conchology.

In these acts the depositor has evinced an amount of disinterested generosity, and of zeal for the promotion of science, rarely to be found combined in the same individual, and which have secured for him the lasting esteem and gratitude of all connected with the Institution.

To Dr. Griffith, the Society owes its highest acknowledgements for the deposit of a large number of works in the various branches of Science, many of them very rare and old, and probably contained in few public or private Libraries in this country.

Through Mr. Wetherill, the Library has been enriched the present year, with several important and valuable Geological works, and it is also indebted to him for completing its series of others, parts only of which it previously possessed.

In closing this report, an opportunity is afforded me of stating to the Society that, during the ensuing year, the Library Committee, in conjunction with the Librarian, propose to select from the numerous miscellaneous works in the collection, such of them as may appear either extraneous to the objects of the Society, or of little value or utility in any form to the members, and to exchange these for other works, either on subjects of Natural History, or of an otherwise really useful character, and also to allow room for further additions of the latter description.

A list of those proposed to be rejected will, however, be first submitted to the Society, and its consent fully obtained, before any action will be taken by the Committee.

WM. S. ZANTZINGER,
Librarian.

December 28th, 1847.

REPORT

OF THE CURATORS

for the year 1847.

At no time since the Academy of Natural Sciences of Philadelphia was instituted, has its condition been more prosperous than at present; and indeed, it is such as to form an important epoch in the progress of Natural Science in America. This successful state is mainly attributable to the interest which our fellow-member and co-labourer, Dr. Thomas B. Wilson, has latterly taken in it. In 1846, this gentleman, through his brother, Mr. Edward Wilson, of Lydstep House, South Wales, a Correspondent of the Academy, purchased, in Paris, the large and magnificent collection in ornithology of the Duc de Rivoli, which, upon importing to this country, he resolved to deposit in the Academy, and at his private expense increased the building to an extent commensurate with the end in view—the accommodation of this vast addition to the Museum. More space was also

obtained in the museum, by removing the library, which had occupied several ranges of cases, into the basement room of the new part of the building.

In May, 1847, Dr. Wilson made a second large purchase in Ornithology, in England, of Mr. A. Gould's splendid collection of Australian birds. which renders a further increase of space necessary for its accommodation. For this purpose, Dr. Wilson obtained ready permission of the Academy to convert its little used lecture room into part of the museum, which work is rapidly progressing towards completion. The north east basement room is also undergoing change for the same object. In accordance with the original plan of the building, all the additions and improvements to it have been made fire-proof. When completed, the collections of the Academy will be contained in three rooms, as follow:

The first or upper room, or hall, is one hundred and ten feet in length, by forty-two in breadth, and is lighted from above, and from the east and west extremities. On the north and south sides are three galleries, and four ranges of vertical cases, and a range of foot cases at the outer edge of the second gallery. On the west side are three galleries and four ranges of vertical cases, on the east side two galleries and two ranges of vertical cases. The two lower ranges of cases on the south side, for two-thirds the length of the room, corresponding to the old part, are occupied by Dr. S. G. Morton's extensive series of human and other crania, and the collection in Comparative Anatomy. The lowest range of cases on the north side, for the same extent as those just mentioned, contains the collection of Mammalia; and the range above this, Dr. Dickeson's collection of American antiquities and the Carpological cabinet, and leads into the herbarium room in the north east corner. All the remaining ranges of cases mentioned contain the Ornithological collection. The floor of the hall is to be occupied by ranges of horizontal, centrally vertical, double cases for the reception of the collection in Palæontology. One of these ranges has been already finished, and part of the collection arranged in it; the others are in progress of construction. At the east extremity, on each side, is a strong vertical case, containing the skeletons of large fossil Sauri in massive slabs of lias limestone.

The second or east basement room is forty-one feet in length by forty in breadth, with a gallery all around it and communicating with another running through its centre. This room will be appropriated to the Mineralogical, Conchological, Herpetological, and Ichthyological collections.

The third, or north east basement room is sixteen feet by nine feet, has a gallery on three of its sides, and is to accommodate the collections of Crustacea and Entomology.

The state of the different departments of the museum, as they at present exist, with the additions which have been made during the past year, will now be briefly referred to.

Mammalogy.—The expensive character of the larger objects in this branch of Zoology, as well as the amount of space required for their proper accommodation, have prevented the Academy from accumulating any great number of them. We possess most of the North American species, besides

a few foreign ones. During the past year a comparatively large number has been received, and it is to be hoped that efforts will be made towards a further increase. We enumerate for 1847, eighty mounted specimens and five skins of Mammalia, chiefly of foreign species, presented by Dr. Wilson, and six specimens presented by Dr. Thomas S. Savage, Mr. Germain, &c.

Ornithology.—Of this department, in which at this time we stand equal to any in the world, a special report is hereto appended, prepared by Mr. John Cassin, who, with Mr. Wm. Gambel, has particularly attended to its arrangement.

In Oology, belonging to the department of Ornithology, in the past year we received in donations, eggs of 79 species of birds, principally from Dr. Wilson and Mr. William H. Edwards.

Herpetology.—Our collection of Reptilia is a large and valuable one. A part of it, however, is not in the best state of preservation, but will be early attended to in the coming year, and before any loss of consequence is sustained. During the past year 88 species of Reptilia have been presented, chiefly by Drs. Hallowell, Savage, Wilson, and Hildreth.

Ichthyology.—In this department we have not made much advance. It is to be hoped the Academy will hereafter encourage this branch more than it has done. During the past year, Dr. Thomas S. Savage presented several jars of fishes from Western Africa, many of which are probably new, and we are indebted to several members for a large specimen of the rare Squatina Dumerili.

Mollusca.—The arrangement of the conchological cabinet has been kindly undertaken by Dr. R. E. Griffith, who with the greatest liberality is also incorporating with it his own private collection, which, as he progresses, he presents to the Academy. In this step he has been followed by the ever liberal Wilson, so that when the collection is fully arranged, with the addition of the two private cabinets, it will contain between 9 and 10,000 species, many of them of the most valuable character.

During the past year there have been presented 1209 species of shells by Dr. R. E. Griffith; 383 species by Dr. T. B. Wilson; 200 species by Wm. Thompson, Esquire, of Ireland; 40 species by Mr. C. B. Adams; 31 species by Mr. T. A. Conrad; and 30 species by several others, inall 1893 species, and almost 2300 varieties.

Entomology.—The destruction of the Academy's once fine collection of Coleoptera and Lepidoptera, for a while quite discouraged those members who were particularly interested in this department, but the general stimulus which has been infused into the Academy by the rich contributions to other departments, has aroused them once more to exertion in the formation of a new collection, which already bids fair to surpass the one lost. Our fellow member, Mr. R. Kilvington, during the past year, made a liberal donation of 1035 specimens, comprising 345 species of British Lepidoptera. and Dr. T. S. Savage has recently presented a collection in alcohol, of large and

magnificent Coleoptera from Western Africa, many of which are new species.

Crustacea.—Our collection of Crustacea, numbers 162 species, and was carefully arranged during the past summer by Dr. Lewis R. Gibbes, of South Carolina, and catalogued by Dr. R. Bridges. Twelve species have been presented the past year by several of the members.

Zoophytes.—Eighty-nine specimens of fifty-nine species of corallines and sponges, and three species of Echinodermata have been presented in the course of the last year.

Comparative Anatomy.—Additions still continue to be made to Dr. S. G. Morton's large and magnificent series of human crania, which now contains upwards of seven hundred specimens of many nations and of various epochs.

At present there appears to be a strong disposition amongst the members to attend more particularly to the heretofore rather neglected department of Comparatve Anatomy. During the past year 385 crania, comprising 260 species of animals, have been presented, principally by Drs. Wilson, Morton, and Huffnagle. Among the number may be particularly mentioned the very large and perfect specimens of crania of *Crocodilus vulgaris* and *Gavialis gangeticus*. Eight mounted skeletons have also been presented, among which are a fine and large skeleton of *Felis tigris* from Dr. Huffnagle, and a beautiful skeleton 12 feet long of *Boa Constrictor* from several of the members.

Botany.—The botanical collection comprises upwards of 40,000 species of dried plants, and about 1000 species of dried fruits. It has been kept in a good state of preservation up to the present time, but has lately been slightly injured by insects; the further ravages of which, will however, be prevented.

Palæontology.—The collection of organic remains which occupied the range of cases on the upper gallery of the south side of the hall, has been removed to the cases prepared for its reception on the floor of the hall, and is in progress of arrangement by Dr. Wilson. It has received very extensive and invaluable accessions during the past year, and when completely arranged will contain in the neighbourhood of 20,000 specimens. In it are the valuable collections of Mr. R. C. Taylor, J. Price Wetherill, Esq., Dr. Morton, Mr. T. A. Conrad, Dr. Dickeson, Miss Benett, &c. The last year Dr. Wilson deposited in the Academy five very nearly perfect skeletons of large fossil Saurians. One of these is the Plesiosaurus Hawkinsii, three are species of Ichthyosauri, and the fifth is the Telosaurus, or Gavial de Boll of Cuvier.

Mr. Conrad presented 2000 specimens from the Miocene of France, the Eocene, Cretaceous, Oolitic, mountain limestone, and Salurian formations of England and France. Mr. R. C. Taylor has presented an extensive collection of very large and beautiful specimens of coal plants of Pennsylvania, besides numerous other fossils, which have not yet been examined. Numerous

specimens of coal plants from Prof. W. R. Johnson, Green sand fossils of Germany, from Dr. F. Roemer, Silurian fossils of New York from Mr. W. A. Pease, and many others, have been received. Dr. Wilson has also deposited about 10,000 fossils, which are already in progress of arrangement, and which he intends presenting to the Academy so soon as a list can be made out.

Mineralogy and Geology—The mineralogical collection is at present carefully packed up in boxes, preparatory to its removal to the north-east basement room, now undergoing alteration. We are indebted to the generosity of Mr. R. C. Taylor for a donation during the last year, of a large collection of rocks, comprising several thousand varieties from different parts of North America and the West India Islands.

Forty specimens of minerals, some of them very beautiful, have been presented by members and others during the past year.

In the course of the arrangement of the mineralogical collection, which several gentlemen have kindly consented to undertake, we have good reason to believe that large additions will be made from the private cabinets of members interested in this department.

Physics.—The last year Mr. Henry Seybert deposited in the Academy a valuable chemical apparatus for the use of the members, which we hope ere long may prove of essential service to the Institution.

The great increase and importance of the museum and library of the Academy, have rendered it necessary that both should be under regular daily supervision. The Academy, therefore, has made it the duty of the chairman of the Curators and Librarian to be present alternately during certain hours daily for this purpose.

We conclude this report by stating that the greatest good feeling and harmony prevails among the members of the Society, all of whom desire to promote the interests of this noble Institution and the cause of science in general.

JOSEPH LEIDY,
December 28th, 1847. Chairman of Curators.

SPECIAL REPORT

ON THE

ORNITHOLOGICAL DEPARTMENT.

The operations in the Ornithological department of the Academy have been of so highly important, not to say of so extraordinary a character, during the year now about closing, that the undersigned Curator, who has been exclusively engaged in that department, hopes he may be allowed to submit a special report, in compliance with a request made by the chairman of the Curators.

I have the high gratification of reporting, that through the ardent attachment to the study of the Natural Sciences, and the great personal enterprize also, of a member of this Society, a collection has been organized, which, as

it now stands, is one of the first extant, and when further additions already engaged shall have arrived, the Ornithological collection of this Academy will be probably the most extensive and complete in the world.

The collection, well known in Europe as that of the Prince Massena, Duke of Rivoli, has been received. This large collection, the arrangement of which is now nearly completed, consists of not less than twelve thousand five hundred specimens, from all parts of the world, and in a very superior state of preservation.

Where so many of the families and genera of birds are alike fully represented, it is not easy to pronounce in which of these a collection is most remarkable; this distinction, however, in the Rivoli collection, I am inclined to award to the Rapacious birds, in the various genera of which it is not only almost absolutely complete, but very many of the species are illustrated by series of specimens showing varieties of plumage, or distinctions of sex, age and season, in the most satisfactory manner. Of the Aquila chrysaetos, (Linn.) or Golden Eagle, for instance, there are six specimens: of the Aquila Bonellii, (Bonap.) also six; of the Aquila nævia, (Gm.) five; of the Aquila vulturina. (Daud.) a large black Eagle from South Africa, four specimens; of the Haliætus vocifer, (Daud.) six; of the Helotarsus ecaudatus, (Daud.) six; of the Pernis apivorus. (Linn.) ten; of the Buteo unicinctus, (Temm.) nine; of the Buteo aguia, (Temm.) nine specimens; and many of the smaller or more variable species are even more fully represented. Of the Astur magnirostris, (Gm.) for instance, we have fifteen specimens, of the Accipiter nisus, (Linn.) thirteen, of the Melierax musicus, (Daud. twelve, of the Circus cinerascens, (Mont.) fifteen, of the Falco peregrinus, Gm., fourteen, and of one species, the Falco sparverius, Linn., twenty-six specimens were not considered too many to illustrate its supposed changes and varieties; and even with these the Duke or his Curator appears to have been scarcely satisfied, for among the specimens in the collection, marked as undetermined, were six others of this species. I mention this case, more particularly, because it affords an example of the extraordinary care and attention shown by the former proprietor of this collection; not even a variety, of any possible consequence in the representation of a species, having been neglected, when attainable, notwithstanding the previous existence in the collection of numerous specimens of the same species.

Of Vultures, all the known species, except three, are in the Rivoli collection; one of which, I may observe, has been obtained from another source.

Taking into consideration the comparative difficulty of collecting Rapacious birds, and more especially of forming such series of specimens as are to be found in this collection, its great scientific value in the Order Raptores; is sufficiently evident.

Nor are other Orders far behind the Raptores, and it is rather a remarkable as well as interesting character, that in many genera the species of which are of more difficult attainment, such as the larger swimmers, waders and gallinaceous birds, the Rivoli collection is particularly complete.

Of the Natatores, or swimming birds, the collection is scarcely second to

that of the Rapacious birds. I beg leave to refer to the splendid collections of the species constituting the various genera of geese, ducks, cormorants and gulls, now beautifully arranged by Mr. Gambel, for the truth of my assertion. The genera Diomedea, Porcellaria and Thalassidroma, are also very amply illustrated. The specimens of the several species of Pelicans, are highly interesting, as are also those of Alca impennis, Linn., Phaleris cristatella, Gm., Mormon glacialis, Linn., and others of species which like these, only inhabit the Arctic regions.

The magnificent series of specimens of the Flamingos, also will be found especially worthy of notice.

The order Grallatores, or wading birds, is very extensively represented; the various genera of plovers, herons, storks, ibises,—in fact, scarcely a genus can be named which is not fully illustrated. The genus Grus, or cranes, is especially worthy of attention. I may notice, too, the various species of Ibis, particulaly the Ibis religiosa, Cuv., or sacred Ibis of the Ancient Egyptians, of which a *suite* of specimens will be found in its proper place.

Of the Rasores or Gallinaceous birds, the Pigeons number one hundred and twenty species.

The genera Perdix, Phasianus, Pterocles, Tetrao and Otis are richly represented, as are also the beautiful genera Gallus, Lophopharus and Tragopan.

I may be allowed to notice especially, splendid specimens of Pano muticus, Linn.—of the Phasiani Sœmmeringii, Temm., Stacei, Vigors, and veneratus, Temm., of Gallus Sonneratii, Temm., of Gallus Lafayettii, Less., of the Polyplectron emphanum, Temm., very fine specimens of the Argus giganteus, Temm., and also a specimen of that singular bird, the Apteryx australis, Shaw, of which, at quite a recent period, but one specimen was known in Europe.

In the great order Incessores or Perching birds, the Garrulinæ, Icterinæ, Tanagrinæ, Laniinæ, Turdinæ, Caprimulginæ, and the Scansorial subfamilies generally deserve particular notice.

Of Paradise birds there are all the known species.

Of the Hornbills, (Buceros,) six species only are wanting.

Of the various genera of Parrots, there are upwards of two hundred species.

In short, so extensive and comprehensive is the Rivoli collection, that it is evident an extraordinary attachment to natural history, a superior knowledge of Ornithology, constant assiduity during a long period, and opportunities of no common order, must alike have contributed to its formation.

Besides the Rivoli collection, others of great interest have been received, one of the most important of which is that of M. Bourcier, an Ornithologist of the city of Lyons, well known by his papers in the Annales des Sciences Physiques et Naturelles de Lyons, the Revue Zoologique and other journals.

The collection consists of about one thousand specimens, and is almost exclusively composed of Conirostres, and Scansores; a large portion of

which are South American and Mexican species. M. Bourcier's collections contains specimens of nearly all the little known species of New Grenada, and is especially rich in the beautiful Tanagers of that country.

The collection made in California by Mr. Wm. Gambel, I am happy to state, has also been added to the collection of this Society. This collection contains numerous and remarkably beautiful specimens of the birds of Western America, many of which were not previously in any collection in the United States, and are of rare occurrence in those of Europe.

The specimens of the hitherto unknown species described by this enterprising young naturalist, in the Proceedings and Journal of this Academy, are especially interesting, as well as those of Tyrannulæ Saya (Bonap.) and nigricans, Sw., Ptilogonys Townsendii, Aud., Pica Nuttallii, Aud., Pipilo fuscus, Sw., Picus Harrisii, Aud., Picus scalaris, Wagler, Lanius elegans, Sw., Hæmatopus Bachmannii, Aud., Strepsilas melanocephalus, Vigors, and many others.

Mr. Edward Harris has presented to the Society several specimens of unusual value to the collection, of which may be mentioned a specimen of Tyrannus verticalis, (Say,) shot near his residence at Moorestown, N. J., being the first instances of the appearance of this species so far west or north.

A series of specimens of the genus Parus, including the Parus septentrionalis, Harris, has also been presented by this gentleman.

A collection made by the writer during a period of about fifteen years is also merged into that of the Academy. It is composed principally of birds from Western Africa, collected under some advantages, and of the rarer birds of North America. Of the African species, I may be allowed to mention a series of specimens of Musophaga violacea, Isert, including males, females and young birds;—specimens of Taracus giganteus, Vieill.—Buceros elatus, Temm.—Cuculus Klaasii, Le Vaill.—Pyrenestes ostrina, Vieill. and others.

Of the American species, those of most interest are a series of specimens of Archibuteo sanctijohannis, (Gm.) including the perfectly adult bird, and the rare stage of plumage figured by Wilson as a variety; also several specimens including the perfect adult of Buteo Pennsylvanicus, (Wilson,) or broad winged Hawk; a specimen of Astur atricapillus, Wilson, from New Jersey; a series of nine specimens of Astur Cooperi, (Bonaparte;) also a specimen of Bombycilla garrula, (Linn.) shot near this city; several specimens of Trichas Philadelphia, Wilson, Sylvicolæ maritima, (Wilson,) agillis, (Wilson,) cœrulea, (Wilson,) and many others of this genus.

There will also be found several specimens of Rallus Jamaicensis, Briss. obtained near this city; a series of specimens of Anser hyperboreus, (Gm.) also a specimen of Bernicla nigricans, (Lawrence,) a recently discovered American species, of which this is the third specimen.

Various collections, including several hundred specimens from the celebrated Ornithologist M. Temminck of Leyden, and a large number from the

British Museum, have been secured for this Society through the exertions of Mr. Edward Wilson, now residing in England.

To this gentleman the collections of the Society are indebted in a degree second only to that of his distinguished brother.

Independently of his immediate agency in obtaining the Rivoli collection and that of M. Bourcier, the collections made by him, personally, in various cities of Europe, evince at once his love of Natural History, his excellent judgment and his just appreciation of the wants of the natural sciences in this his native country.

Mr. Wilson's ornithological collections, in the aggregate, amount to several thousand specimens, a portion of which, only, has been received;—but that portion contains some of our most valuable acquisitions. I will mention a fine specimen of Haliætus pelagicus, (Pall.) from Behring's Straits, a species which is probably the largest of known Falconidæ, and is especially interesting to American Ornithologists from the fact of its being an inhabitant of the northern regions of this continent; also a beautiful specimen of the Meleagris ocellata, Temm., the second species of Turkey discovered a few years since in Yucatan.

For almost the whole of the large collection of Humming Birds the Society is indebted to the same gentleman.

One other collection, which is to be delivered to this Society early in the coming year, remains to be noticed, and that is Mr. John Gould's collection of the birds of Australia.

When I inform the Society that this collection contains specimens of all the known Australian birds, except five species, and of the nests and eggs of a large number, its peculiar value will be immediately understood. I may be excused for remarking, however, that Mr. Gould's collection acquires additional interest from the consideration that it contains the original specimens from which many of the numerous species described by him were first characterized, and that the specimens comprised in his collection are those from which the drawings were made for his latest and splendid work, "The Birds of Australia."

The number of specimens now contained in the collection and those which will be received in the course of the ensuing year, according to arrangements now completed, may be estimated as follows:

Duke of Rivoli's collection, ...	12,500	specimens
M. Bourcier's collection, ...	1,000	"
Mr. Edward Wilson's collections . . .	4,000	"
Mr. Gambel's and Mr. Cassin's collections . .	1,000	"
Mr. Gould's collection, ...	2,000	"
Former collections of the Academy . . .	2,500	"
	23,000	

As premised at the commencement of this report, this magnificent result is the work of an individual member of this Society, himself a naturalist of excellent and varied acquirements, who in the formation of this and other

collections, and a library also, in natural history, may be said to have realized the happiest hopes of the American student and the American naturalist, and to have marked an era which must ever be acknowledged as the most important in the history of the Zoological sciences in this country.

The arrangement of this immense collection, excluding duplicates, will, in all probability be completed during the coming year, and it is also probable that at the next annual meeting of the Academy, a report can be made of the exact number of species and specimens exhibited.

It is to be understood, however, that other extensive additions are contemplated, which if received and incorporated into the present collection, may, of course, naturallly affect the issue to which I allude.

All of which is respectfully submitted by

John Cassin,
Curator.

December 28th, 1847.

A note was read from Prof. Haldeman, dated Columbia. Penn., Dec. 27, 1847, requesting that the following correction of his published papers may be noticed in the present No. of the Proceedings.

The genus Heterodromia, *Hald.*, Proceedings Academy, vol. 3, p. 127, seems to be identical with Psammœchus, *Boudier*, although the prothorax is not wider than long, as described by Latreille.

The proposed genus Chorea, *Hald.*, Proceedings Academy, vol. 3, p. 150, is founded upon the female of Cerophytum, unless the structure of the posterior femora should be found to differ. Neither of these rare genera has been yet announced as American, and but one species of each is found in Europe. M. Lucas has described a species of Psammœchus from Algeria, which he names *Boudieri.*

The Academy then proceeded to an election for Officers for 1848. The following result was announced by the Tellers:

President.
William Hembel.

Vice-Presidents.
J. Price Wetherill,
Samuel George Morton.

Corresponding Secretary.
Walter R. Johnson.

Recording Secretary.
John Lambert.

LIBRARIAN.

Wm. S. Zantzinger.

TREASURER.

George W. Carpenter.

CURATORS.

Joseph S. Leidy,
William S. Vaux,
Samuel Ashmead,
John Cassin.

AUDITORS.

Robert Pearsall,
William S. Vaux,
Robert Bridges.

PUBLICATION COMMITTEE.

William S. Vaux,
Walter R. Johnson,
Robert E. Griffith,
Samuel Ashmead,
William Gambel.

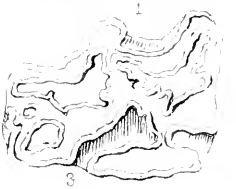
ELECTION OF MEMBERS AND CORRESPONDENTS.

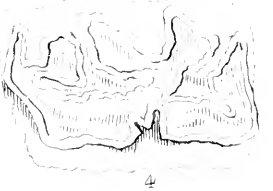
Joseph Pancoast, M. D., of Philadelphia, was elected a Member, and the following were elected Correspondents of the Academy:

William Lonsdale, Esq., F. G. S., of London.
Sir J. F. W. Herschell, do.
Michael Faraday, Esq., F. R. S., do.
Prideaux John Selby, Esq., Northumberland, England.
Prof. Nillson, of Lund, Sweden.


1


2


3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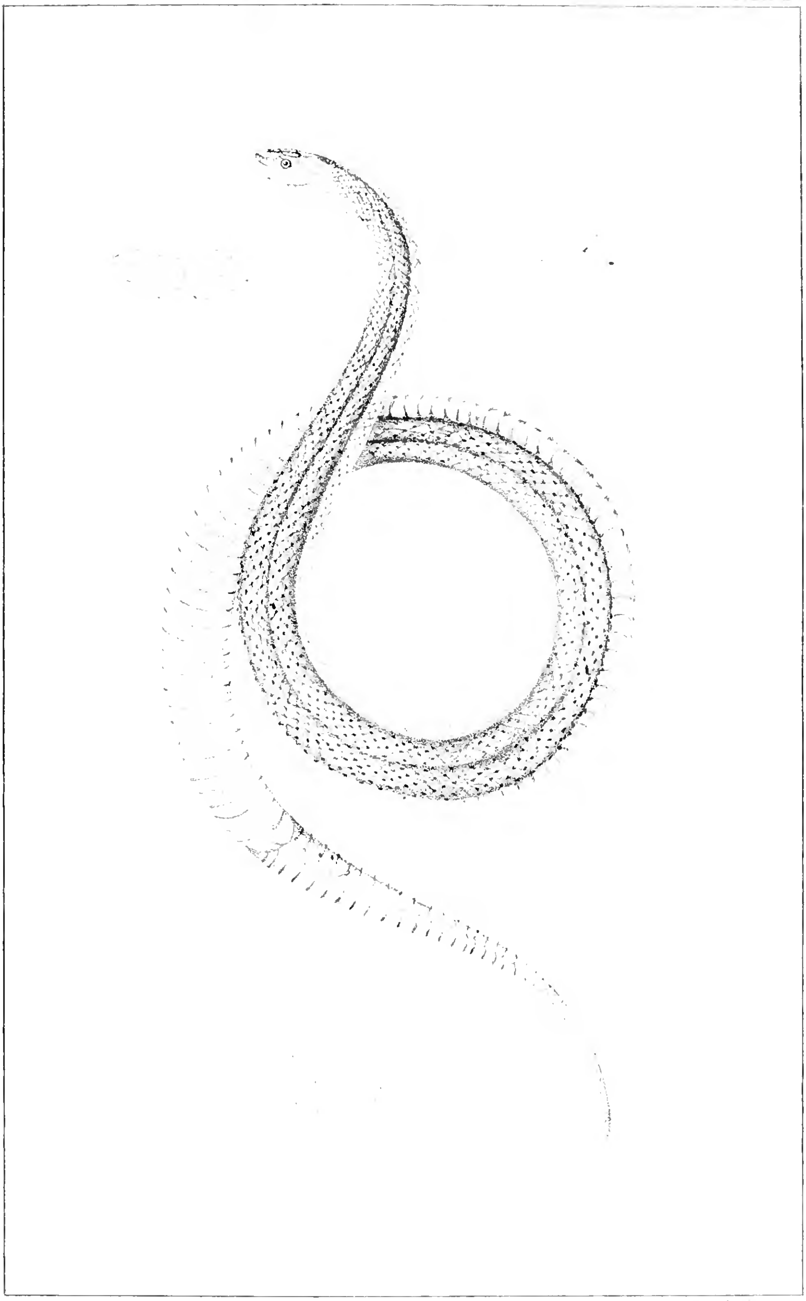
5


6

Bowen & Co Lith Philada

Equus Americanus



Bowen & Co. lith. Philada.

Coluber venustus

Anatomy of Spectrum Femoratum.

Fig. 2. Fig. 1.

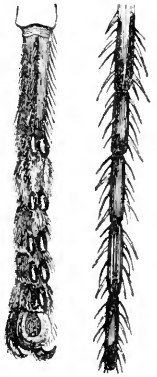


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

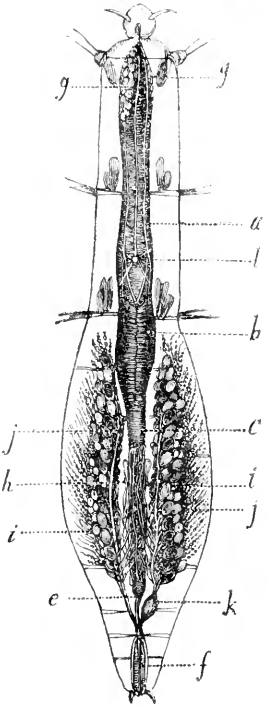


Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Anatomy of Spectrum Femoratum.

Fig. 13.

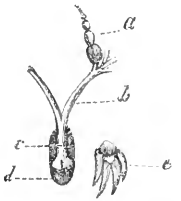


Fig. 14.

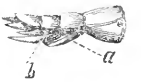


Fig. 15.

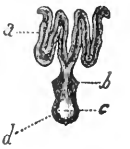


Fig. 16.

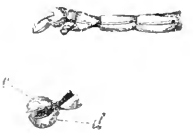


Fig. 17.

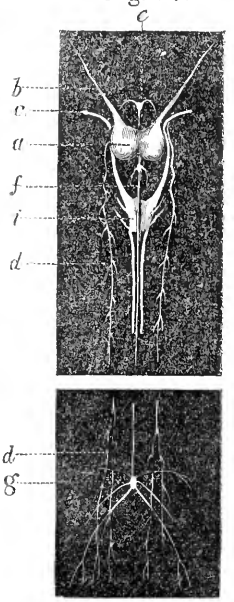


Fig. 18.